DOCUMENT RESUME

ED 196 329 HE 013 298

AUTHOR Butler, Matilda: Marzone, Jean
TITLE Education: The Critical Filter. Volume 2. A Statistical Report on the Status of Female Students in Postsecondary Education.
INSTITUTION Far West Lab. for Educational Research and Development, Berkeley, Calif.: Women's Educational Equity Communications Network, San Francisco, Calif.
SPONS AGENCY Office of Education (DHEW), Washington, D.C. Women's Educational Equity Act Program.
PUB DATE 80
CONTRACT 300-77-0535
NOTE 74p.: Some tables will not reproduce well due to small print.

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS *College Students: Comparative Analysis: *Educational Experience: Educational Finance: Educational Objectives: Educational Status Comparison: Employment Patterns: Enrollment Trends: *Equal Education: Extracurricular Activities: *Females: Outcomes of Education: *Postsecondary Education: Sex Stereotypes: Statistical Analysis: Womens Athletics: *Womens Education

ABSTRACT

The progress and status of female students in postsecondary education are presented in this second of a three-volume study of female education. Volume one focuses on the status of girls and women in elementary and secondary education: volume three, on female professionals in postsecondary education. This volume deals with undergraduate and post-baccalaureate concerns separately. In the first part, such undergraduate issues as college enrollment, portrayal in textbooks, counseling, financial concerns, athletics and extracurricular activities, and outcomes are addressed. The post-baccalaureate section reports enrollment, financial concerns, outcomes, and employment. Among the numerous conclusions are: women and men will represent equal percentages of the college population in the 1980's: women enter college with better grades than men: women in graduate school have a higher attrition rate than men: annual incomes of women and men with four years of college are considerably different: and in 1879 women earned 1 percent of all Master's degrees and in 1978 they earned 48 percent. Extensive tables and a bibliography are provided. (IC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED196329

WEECN
WOMEN'S EDUCATIONAL EQUITY COMMUNICATIONS NETWORK

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

volume 2

education: the critical filter

a statistical report on the status of female students in postsecondary education

Matilda Butler and Jean Marzone

1980

HE 013 298

U.S. DEPARTMENT OF EDUCATION
Shirley M. Hufstedler, Secretary
Steven A. Minter, Undersecretary
F. James Rutherford, Assistant Secretary
for Educational Research and Improvement
Women's Educational Equity Act Program
Leslie R. Wolfe, Director

WOMEN'S EDUCATIONAL EQUITY COMMUNICATIONS NETWORK
Sponsored by the U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE/Office of Education
Under the Auspices of the Women's Educational Equity Act
Operated by FAR WEST LABORATORY FOR EDUCATIONAL RESEARCH AND DEVELOPMENT
1855 Folsom Street, San Francisco, California 94103
(415) 565-3032

This project has been sponsored with Federal funds from the Department of Education, Women's Educational Equity Act Program, under contract number 300-77-0535. The contents of this publication do not necessarily reflect the views or policies of the United States Department of Education; nor does mention of trade names, commercial products or organizations imply endorsement by the United States Government. Materials may be reproduced without permission, but credit would be appreciated.

• • •

DISCRIMINATION PROHIBITED—No person in the United States shall, on the ground of race, color, or national origin, be excluded from participating in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance, or be so treated on the basis of sex under most education programs or activities receiving Federal assistance.

• • •

About the Women's Educational Equity Communications Network—WEECN is an information service and communication system established in 1977 and operated by the Far West Laboratory for the Department of Education under the auspices of the Women's Educational Equity Act. As an information service, WEECN collects, screens, classifies, stores, and provides information on projects and materials related to women's educational equity. As a communication system, WECN facilitates contact among persons, groups and agencies who are working on behalf of women's educational equity. Users of WEECN include teachers, administrators, counselors, curriculum specialists, preservice and inservice trainers, researchers, students, parents, and citizens.

—Matilda Butler, Director

Acknowledgments

Getting a publication into print requires more than just an author putting ideas on paper. A publication represents the combined efforts of many. With that in mind, we would like to thank Lucy Watson Sells, Public Service Science Resident with the Math/Science Network, and Leo Eiden, Assistant Director of the Statistical Information Office of the National Center for Education Statistics, for reviewing the manuscript. Their observations and recommendations are greatly appreciated. We also want to thank Carolyn Joyner, Women's Educational Equity Act Program, Department of Education, for working with us.

Special thanks go to Suzanne Pingree, Lecturer, Women's Study Program, University of Wisconsin, Madison, for drawing the cartoons; to Chet Tanaka, Ed Art Studios, for designing the cover; and to Sandra Fulmer for doing the layout. Kendra R. Bonnett edited the manuscript.

Contents

Introduction.....1

Undergraduate Concerns.....5

College Enrollment.....5

Portrayal in Textbooks.....16

Counseling.....18

Financial Concerns.....18

Athletics and Extracurricular Activities.....21

Outcomes.....24

Post-Baccalaureate Concerns.....37

Enrollment.....37

Financial Concerns.....44

Outcomes.....46

Employment.....54

Conclusion.....65

References.....67

Introduction

With media slogans like "You've come a long way, baby" and media emphasis on the "first woman to," it has become difficult to evaluate the status of women. Are we better off than we were? Are we reaching equity? Have we moved beyond discrimination? Those of us in education find a frequent need to know how we are doing in school, how many of us there are, where we are going, how much we are getting paid, and other facts and figures about our status. However, ambivalence about such numbers always exists. In applying to everyone, national statistics rarely provide an accurate description of our own unique situation. Still, during this period of charting progress toward educational equity for women, these statistics are markers along the path.

This volume is a progress report on the status of female students in post-secondary education. Of the two other volumes in this sequence, the first focuses on the status of girls and women in elementary and secondary education. The last will focus on female professionals in post-secondary education. In all three volumes our emphasis is the present. We have used the most recent statistics we could locate.[1] In the future, these figures will help us know where we once were. We have also collected information from previous decades, allowing us to compare where we are now with where we once were. In some ways, this report is like Robert Benchley's mythological bird, the Killeyloo. The bird always flew backwards because it couldn't tell where it was going until it had seen where it had been. In knowing where we have been and where we are now, we can see more clearly where we are going.

[1] At the time of this writing, the 1980 edition of the National Center for Education Statistics' Digest of Education Statistics was not available.

In looking backwards, we found indications of some of the attitudes that prevented women from being accepted in higher education. These include:

Men will lose as women advance; we shall have a community of defeminated women and demasculated men. When we attempt to disturb God's order, we produce monstrosities. *(President of the University of Michigan speaking against the admission of women, 1860's)*

Too many women have already made themselves permanent invalids by an overstrain of study at schools and colleges. *(Student newspaper, Agricultural College of Pennsylvania, 1889)*

When they go to schools, real girls like English and music and auditorium; real boys prefer manual training, gym, and arithmetic. In college the boys smoke pipes, drink beer, and major in engineering or physics; the girls chew Juicy Fruit gum, drink cherry Cokes, and major in the fine arts. *(Brown, 1968)*

Most graduate schools expect women who apply to graduate schools of law, medicine, or even the arts and sciences to stop working when they have children and not to return to a professionally respected role. Since this expectation is often realistic, it is hard to argue against the professional schools' misogynistic prejudices. *(Jencks and Riesman, 1968)*

Over the 100 years from the 1860's to the 1960's, a pervasive sex-role socialization has caused people to believe that boys will be boys and girls will be girls and that it is inappropriate to expect the same intellect or behavior from both. Occasional exceptions to the general exclusion of women from post-secondary education exist. During the Civil War many all-male colleges, faced with shrinking enrollments and mounting financial burdens, accepted women. In the 1920's, women again became an important element in higher education and by the end of that decade were receiving 40% of the bachelors and 17% of the doctorates. Although there were proportionally fewer women in the 1930's, World War II brought fewer men and more women into colleges and universities. By 1945

women were receiving 20% of the doctorates. In the postwar years, however, women were encouraged to return home and let men resume their places in education and employment. Universities viewed the GI Bill as a male entitlement to higher education. By 1949 women were receiving only 9% of the doctorates.

We rarely find blatant regulations or quotas excluding women from education in 1980. Still, a number of factors adversely affect their education.

THE CRITICAL FILTER NOTION. The theme of this publication is borrowed from Lucy Sells, who pioneered the concept of "math as the critical filter." Just as she documented how mathematics is the critical filter for certain occupations, we document how education is the critical filter for most experiences in adulthood. Stated simply, to become an engineering major in college, one needs four years of high school college preparatory math and probably a year of high school physics and chemistry. With less one will be "filtered" out of engineering. Similarly, options in adulthood, including types of work and forms of recreation, depend on education. More college is better than less college. But the education filter notion is not just a restatement of the maxim that the more education one has the more opportunities there are.

The education experience is not the same for everyone, and the filter works in many aspects of education. Those of us concerned with educational equity for women note the disparities between the sexes in enrollment, portrayal in educational materials, courses, counseling, athletics and extracurricular activities, and outcomes. For instance, if males participate in more sports than females, their college experience is different. If these males are learning lessons in sports that later help them on the job, then a lack of experience with sports may filter women out of on-the-job success.[2] If males are counseled into vocational education courses that lead to employment in skilled trades, and females are counseled into home economics courses that lead to low-paying jobs or no employment, then counseling is a part of the education filter that creates different adult experiences for females and males. If college textbooks "put down" women's roles as professionals, then instructional materials become part of the filter that contributes to differential enrollment rates in graduate school and differential rates of employment.

Each of these student-oriented concerns can be documented. This report is an effort to consolidate the documentation. Once documented, each can be addressed by one or more processes of educational change. These processes include legislation and regulation, program revision and program innovation, dissemination and communication, and research and development. (Table 1) It is beyond the scope of this report to recommend which concerns are best met by which educational change process. Individuals with differing values will attribute different interpretations to the data, and will therefore suggest different procedures. This report, then, provides information on the relative differences and similarities between female and male students in post-secondary education that may be useful for future research and action.

USES. The information in this report will have many applications. Major uses include:

1. General reference for keeping current on the status of women in post-secondary education.

2. Baseline information for action groups who monitor the status of women in education.

---

[2] Betty L. Harragan, Games Mother Never Taught You (New York, 1978) as an example of how team sports give males the advantage over females in the employment situation.

3. Statistical evidence for researchers seeking to understand the differential effects of education.

4. Documentation for decision-makers working with policies, such as goals and timetables for affirmative action, or the establishment of new programs.

5. Background information for a proposal concerning women's educational equity.

Table 1

CONCERNS FOR EDUCATIONAL EQUITY FOR WOMEN BY THE PROCESSES OF EDUCATIONAL CHANGE

CONCERNS	PROCESSES: Legislation and Regulation	Program Revision and Program Innovation	Dissemination and Communication	Research and Evaluation
Student				
Enrollment				
Portrayal in Educational Materials				
Courses				
Counseling				
Athletics/Extracurricular Activities				
Outcomes				
Etc.				
Professional				
Training				
Employment				
Salary				
Goverance				
Etc.				

Source:

Adapted from Matilda Butler. "Development of Equality of Educational Opportunity Department." Far West Laboratory, June 1978.

6. Facts and figures for a speech on women's educational equity.

7. Proof of the need for the development of new strategies, methods, materials, and programs concerning women.

Although the statistics reported here provide important information, they are not the full answer to the questions we have concerning the status of women as students. They can tell us about different courses taken by women and men, or that women make better grades than men, or that men earn more degrees than do women. Statistics alert us to the existence of a problem and offer a way of measuring change in the problem over time, but they do not explicate that problem, or necessarily suggest solutions. But used regularly and imaginatively, they provide much information on women's educational equity.[3]

SCOPE. This report about students at the post-secondary level emphasizes national data. We prefer broad surveys or studies rather than information that is limited by geographic (one state only), membership (one association), or other boundaries. If, however, a concern is considered important and the only available information is based on a limited population, we use it. We favor recent data and have sought updates of previous studies. Even so, some information is not current and may not reflect the most recent situation. Whenever possible, we include information on ethnic groups. Throughout the report, we focus on those statistics that mark the milestones of progress through the educational system.

One possible outcome of the development of this compendium may be the recognition of the need for additional or more recent information of those concerns we have specified. For example, no adequate indicators of counseling exist--only indirect measures, such as the types of courses taken by males and females. We do not know if the advice of counselors is sought equally by both sexes, or if the quality of the counseling experience is the same, or if the specific advice given is comparable.

---

[3] This argument, as well as our approach, draws on the "social indicator" literature. See, for instance, Raymond Bauer's Social Indicators, DHEW's Toward a Social Report, Eleanor Sheldon and Wilbert Moore's Indicators of Social Change, Abbott Ferriss's Indicators of Trends in American Education and Indicators of Trends in the Status of American Women, OMB's Social Indicators 1973 and 1976, and William Paisley and Matilda Butler's The Status of Education Research and Development in the United States: Databook 1976.

Another possible outcome may be the recognition of the need for additional concerns. We encourage you to give us your reaction so that later versions can include an updated, and possibly expanded, set of indicators.

DATA SOURCES. We rely on established Federal data sources, such as those produced by the National Center for Education Statistics, the Bureau of the Census, and the Department of Labor. We also use data gathered by learned societies and professional associations, such as the National Academy of Sciences and the American Educational Research Association. Finally, we review books, monographs, magazines, and newsletters containing pertinent information.

ORGANIZATION. The information is divided into chapters. These include undergraduate and graduate enrollment, portrayal in instructional materials, courses, athletics and extracurricular activities, and outcomes (including drop-out rates, grades, knowledge, aptitudes, graduation, and employment).

This volume is the second of three. The first focuses on students and professionals in elementary/secondary education. The third volume will focus on professional concerns in post-secondary education. The sheer volume of information available has caused us to divide this material into three volumes. In addition, we believe the division permits better access to that portion of the information that is of greatest interest to particular readers.

Undergraduate Concerns

College Enrollment

General College Enrollment

A first question to be asked when determining the status of women in higher education is "What percentage of the population in the traditional college age (18-21) are enrolled in college?" According to 1977 data, 41% of the males versus 36% of the females are enrolled, representing a considerable change over the past ten years. In 1967, 50% of the males versus 32% of the females were in college.

Looking at 1977 data for those who are 22 to 34 years, 9% of the females and 12% of the males are enrolled in college. The percentage of males enrolled has stayed about the same since 1967 when it was 11%. However, the percentage of females has more than doubled since 1967 when it was 4%. The increasing number of reentry women seems to be equalizing the percentages of females and males who are mature students.

Table 2 shows the percentage of the population enrolled in college by sex, age, race/national origin. In the all races category, the greatest difference is among the 22-24 year olds. For this group, 13% of the females and 19% of the males are enrolled. These are the years most associated with graduate work. As for differences within each sex, those of Spanish origin are the least likely of the females to be enrolled. Among the males, Blacks are the least likely of the 18-19 year olds and those of Spanish origin are the least likely of the 20-24 year olds. When we consider the combination of race and sex, the largest difference in enrollement rates is between 18-19 year old Black females (31%) and males (18%). The second largest difference is between 22-24 year old Spanish origin females (6%) and males (14%).

After considering the percentage of the population enrolled in college, the next question focuses on those in college. In the Fall of 1979, women were 51% of those enrolled. (Table 3) This represents a new high and for the first time makes them a majority in what has been a long and slow journey since 1869, when women were estimated to be 21% of those enrolled in resident degree-credit programs. The previous high occurred in 1919-20 when women were 47% of those enrolled. The number dropped to a low of 30% in 1949-50, increasing ever since to the 1979 high.

College Enrollment and Type of Institution

College enrollment varies according to type of institution, age and race of student. Although women are now greater than half of those enrolled in all higher education institutions, their percentage changes depending on the type of institution. They are 40% of those in universities, 50% of those in all other four-year institutions, and 52% of those in two-year institutions.

Table 2

Percent of Population Enrolled in College by Sex
Race/National Origin, and Age, 1977

	FEMALES				MALES			
AGE	ALL RACES	WHITE	BLACK	SPANISH ORIGIN	ALL RACES	WHITE	BLACK	SPANISH ORIGIN
18-19	36%	37%	31%	25%	35%	38%	18%	22%
20-21	28	28	26	21	33	34	26	20
22-24	13	13	12	6	19	19	18	14
25-29	9	8	10	5	12	12	12	12

Source: Department of Commerce, Bureau of the Census. Current Population Reports. Series P-20, No. 321. Washington, DC, 1978.

Women's colleges, although part of the "other four-year institutions" category, report renewed interest by women. In the past four years, application rates at women's colleges have increased by 24%. Enrollment, although not as dramatic, increased by 3% in 1975, 4% in 1976, and 2% in 1977.[1]

QUOTE:

> Admissions offices at women's colleges across the country report that women entering college today are actively seeking career development opportunities, either through academic programs, internships or career counseling services. Currently, the programs drawing increased numbers of students to women's colleges are those with offerings related to business administration and management, political science and public administration, communications and the health sciences.
>
> - Women's College Coalition, 1978

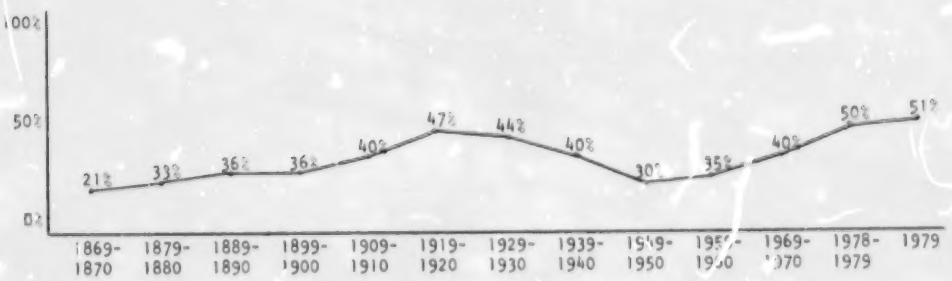
We can also look at specific institutions to see how they differ in the enrollment of females and males. (Table 4) Among the 60 institutions enrolling the largest number of students, 20% (12) have more than 50% females among their students, 12% (7) have half females and half males, and 68% (41) have less than 50% females among their students. Texas A & M, with 33%, had the lowest percentage of women, while San Francisco State University and Triton College, both with 56%, had the highest percentage.

Among these 60 institutions, 70% are universities, 15% are four-year institutions, and 15% are two-year institutions. However, of the 12 that are more than 50% female, 25% are universities, 17% are four-year institutions, and 58% are two-year institutions.

In 7 (12%) of the 60 institutions women comprise less than 40% of the students--all 7 are universities. (Table 5) It is a striking contrast to have 100% of the institutions with the lowest percentage of females be universities, while only 25% of the institutions with the highest percentage of females are universities. Because total enrollments are used in these calculations, universities may have the lowest

Table 3

Percentage of College Students Who Are Women, 1869-1979



Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Digest of Education Statistics 1977-1978. Washington, DC, 1978. Department of Commerce, Bureau of the Census. Current Population Reports. Series P-20, No. 321. Washington, DC, 1978. 1979 data from the National Center for Education Statistics, unpublished data. Write: Statistical Information Office, NCES, 205 Presidential Building, 400 Maryland Ave., SW, Washington, DC 20202.

[1] Reported in Title IX News, May 18, 1978.

Table 4

Large Institutions with Highest Percentage Female Enrollment, 1977

Institution	% Female	Type	Rank[1]
San Francisco State University	56%	4-Yr	37
Triton College (Illinois)	56	2-Yr	51
Miami-Dade Community College (Florida)	55	2-Yr	5
Northern Virginia Community College	55	2-Yr	29
Long Beach City College (California)	53	2-Yr	23
El Camino College (California)	53	2-Yr	38
California State University, Northridge	52	4-Yr	27
Northern Illinois University	52	Univ	43
Boston University (Massachusetts)	52	Univ	44
New York University	51	Univ	24
City College of San Francisco	51	2-Yr	39
American River College (California)	51	2-Yr	55

[1] Institutions are ranked by size of total enrollment.

Source:

Department of Health, Education, and Welfare. National Center for Education Statistics. Digest of Education Statistics 1979. Washington, DC, 1979.

percentages of females since they have higher attrition between the first year of college and graduate work.

College Enrollment and Age of Student

College enrollment also varies according to age. As Table 6 illustrates, the greater increase of females has been among the 22-34 year old students. In 1967 women were just 28% of those in college in this age group. By 1977 they were 44% of the 22-34 year olds. Among the 18-21 year olds, women were already near parity and only increased from 46% (1967) to 50% (1977).

College Enrollment and Ethnicity

In addition to institutional and age differences in enrollment, a difference according to ethnicity also exists. Across all institutions, Caucasians are 84% of those enrolled, Blacks (non-Hispanics) are 9%, Hispanics are 4%, Asians and Pacific Islanders are 2%, and American Indian/Alaskan Natives are 1%. Women are 51% of the total ethnic minority enrollment. They are 54% of Blacks enrolled, 49% of the American Indian/Alaskan Natives, 47% of the Hispanics, and 45% of the Asians and Pacific Islanders.[2]

[2] Department of Health, Education, and Welfare, National Center for Education Statistics, Fall Enrollment in Higher Education, 1976 (Washington, DC, 1976).

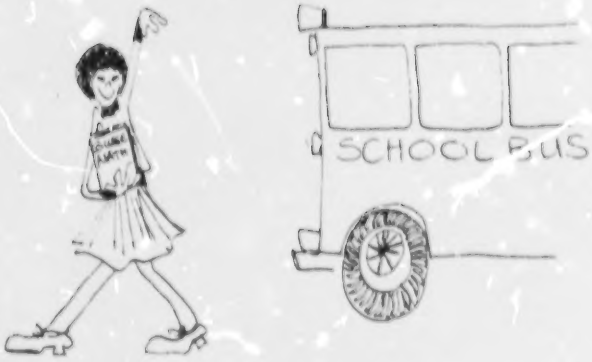


Table 5

Large Institutions with Lowest Percentage of Female Enrollment, 1977

Institution	% Female	Type	Rank[1]
Northeastern University (Massachusetts)	39%	Univ	16
Purdue University (Indiana)	39	Univ	26
University of California, Berkeley	39	Univ	35
Iowa State University of Science and Technology	39	Univ	53
George Washington University (D.C.)	37	Univ	52
University of Southern California	35	Univ	36
Texas A & M University, Main Campus	33	Univ	32

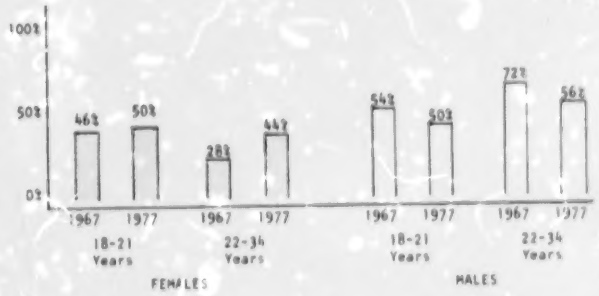
[1] Institutions are ranked by size of total enrollment.

Source:

Department of Health, Education, and Welfare. National Center for Education Statistics. Digest of Education Statistics 1979. Washington, DC, 1979.

Table 6

Percent of College Students by Age and Sex, 1967 and 1977



Source:

Department of Commerce, Bureau of the Census. Current Population Reports. Series P-20, No. 321. Washington, DC, 1978.

Undergraduate Enrollment: Grades

A survey of first-year students enrolled in college for the first time shows some interesting differences as women and men begin their college years. Differences can be found in the grade average from high school, in their rates of admission to college, in their probable field of study, and in the highest degree planned. Information from the class entering higher education in the Fall of 1979 shows that women left high school with better grade averages than men. Twenty-four percent of the women and only 18% of the men graduated with an A average. Approximately the same percentage of women (61%) and men (59%) had B averages. More men (24%) than women (14%) had C averages. (Table 7)

Table 7

High School Report Card of First Year College Students 1979

Report Card for:	Women	Report Card for:	Men
A or A+	11%	A or A+	8%
A-	13	A-	10
B+	22	B+	17
B	28	B	26
B-	11	B-	16
C+	9	C+	15
C	5	C	9
B	-	D	-

Source: Cooperative Institutional Research Program. The American Freshman: National Norms for Fall 1979. Los Angeles: Graduate School of Education, University of California, 1979.

Information on the first-year students from ten years earlier indicates this discrepancy in the high school grades of female and male college students is a consistent pattern. In 1969, 37% of the women and 21% of the men had a high school grade point average of B+ or better. The comparable data for 1979 is 46% of the women and 35% of the men.

Undergraduate Enrollment: Admissions

Enrollment is determined by the admissions policies. Information on one selective, four-year liberal arts college illustrates to what extent females had to be better qualified than males to be admitted in 1969. (Table 8)

Table 8

Percentages of Acceptances to a Selective Four-Year Liberal Arts College

Criterion	Percentage of Applicants Accepted	
	Female	Male
High School Class Rank		
Top fifth	62%	92%
Second fifth	18	58
Third fifth or below	4	36
SAT Score, Verbal		
700-800	93	92
600-699	75	87
500-599	32	73
Below 500	6	35
SAT Score, Mathematical		
700-800	85	91
600-699	68	81
500-599	33	59
Below 500	11	19

Women were 52% of the applicants and 45% of the acceptances.

Source: W. T. Furniss and P. A. Graham, eds. Women in Higher Education. Washington, DC: American Council on Education, 1974.

Although our analysis of the most recent data indicates some change in the past few years, the fact remains that a lower percentage of females than males applying from the top 40% of their class are accepted. For example, 81% of the females who apply to Ithaca College are in the top 40% of their class, yet only 76% are accepted. (Table 9) But, only 56% of the males who apply are in the top 40%, and 95% are accepted. On the other hand, a greater percentage of female than male applicants who score 700 or higher on their verbal and math SATs are admitted to Ithaca (e.g., 2% of the women have scores of 700+ on the math test and 93% of these are accepted. Four percent of the males score in the same range and 90% are accepted). The greatest difference between females and males occurs among those scoring 700 or higher on the verbal test. At Ithaca College, 77% of the male applicants with a 700+ verbal score are accepted, while 96% of the females with the same score are accepted. We might surmise that colleges such as Ithaca are discounting grades made by females ("We know women make better grades than males.") and inflating test scores for them ("We know women don't test well."). Whatever the reasons, women are accepted at a rate that is somewhat higher than for men. Women are 54% of the applicants and 57% of the acceptances at Ithaca.

Table 9

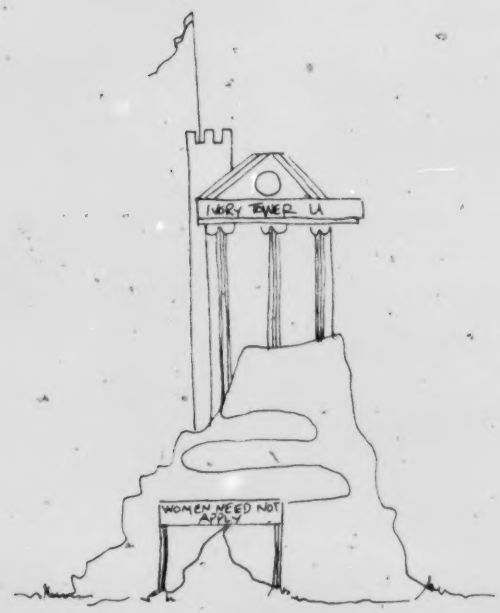
Percentage of Applicants and Acceptances to Ithaca College, New York

Criterion						
High School Class Rank	Percentage of Applicants					
	Females			Males		
Top 40%	81%			56%		
Bottom 60%	19			44		
	Percentage of Applicants Accepted					
	Females			Males		
Top 40%	76			95		
Bottom 60%	20			32		
SAT Scores	Percentage of Applicants					
	Females			Males		
	V	M	TOT	V	M	TOT
700+	1%	2%	1%	1%	4%	3%
600-690	16	19	18	11	27	19
500-590	41	47	44	38	44	41
Below 500	42	32	37	49	24	37
	Percentage of Applicants Accepted					
	Females			Males		
	V	M		V	M	
700+	96%	93%		77%	90%	
600-690	85	85		76	73	
500-590	73	69		65	53	
Below 500	46	42		42	32	

V = Verbal M = Mathematical

Women are 54% of the applicants and 57% of the acceptances at Ithaca College.

Source: Douglas D. Dillenbeck and Sue Wetzel, eds. The College Handbook. Part 2: Tables and Maps. New York: College Entrance Examination Boards, 1972.



FACT:

In 1941, only 10 institutions listed in the College Entrance Examination Board's Annual Handbook were open to both women and men. Five of these indicated different entrance requirements, costs, or scholarships for women. The five are: Carnegie Institute of Technology, Middlebury College, Swarthmore College, The University of Chicago, and Stanford University.

An analysis of 28 institutions (7 each for the 4 categories of private four-year, public four-year, private university, and public university) showed no consistent pattern to the acceptances. Although there are specific instances of higher percentages of females or males being accepted within a particular SAT score range or type of college, these tend to balance out. (Table 10)

Table 10

Percentage of Acceptances to Public and Private Four-Year Colleges and Universities[1]

		FEMALES		MALES	
SAT RANGE	COLLEGE TYPE	SAT-V	SAT-M	SAT-V	SAT-M
700+	PRI-4 Yr	67%	70%	77%	65%
	PUB-4 Yr	100	90	100	92
	PRI-Univ	97	93	95	94
	PUB-Univ	89	88	80	72
600-690	PRI-4 Yr	39	42	54	43
	PUB-4 Yr	89	90	83	72
	PRI-Univ	94	92	88	84
	PUB-Univ	72	89	74	75
500-590	PRI-4 Yr	26	29	34	38
	PUB-4 Yr	73	59	71	66
	PRI-Univ	84	82	80	75
	PUB-Univ	76	85	77	78
Below 500	PRI-4 Yr	27	22	25	24
	PUB-4 Yr	41	39	36	31
	PRI-Univ	54	58	52	41
	PUB-Univ	60	61	56	50

SAT-V represents the SAT verbal score.
SAT-M represents the SAT mathematical score.

[1] Colleges and universities in the analysis are: Private 4-Yr - Antioch, Ithaca, Macalester, Middlebury, Pomona, Reed, Williams; Public 4-Yr - Boston State, Central Connecticut State, Glassboro State, San Francisco State, SUNY-Oswego, Towson State, Slippery Rock State; Private University - American, Duke, Miami, Redlands, Rice, Syracuse, Washington; Public University - Georgia, Hawaii, Massachusetts, Nebraska, North Carolina, South Carolina, Southern Florida.

Source: Douglas D. Dillenbeck and Sue Wetzel, eds. The College Handbook. Part 2: Tables and Maps. New York: College Entrance Examination Boards, 1972.

This seeming balance is verified in Table II. Overall, the percentage of women accepted is similar to their percentage in the applicant pool. They were somewhat more likely than males to be accepted at public four-year institutions.

Table II

Percentage of Women as Applicants and Acceptances to Public and Private Four-Year Colleges and Universities

COLLEGE TYPE		% FEMALES
Private, 4-Yr	Applicants	47%
	Acceptances	47%
Public, 4-Yr	Applicants	58
	Acceptances	61
Private, University	Applicants	40
	Acceptances	41
Public, University	Applicants	43
	Acceptances	43

Source: Douglas D. Dillenbeck and Sue Wetzel, eds. The College Handbook. Part 2: Tables and Maps. New York: College Entrance Examination Boards, 1972.

FACT:

Middlebury College, in 1941, required women, but not men, to take the SAT.

FACT:

In 1941, Swarthmore College, required women to submit a formal application by January 1 of the year in which admission was sought. Men had to apply by April 1.

FACT:

In 1941, a woman attending Stanford University had to pay about 10% more than a man.

Carnegie Institute of Technology

Expenses for Men		Expenses for Women	
Tuition Fee	$360	Tuition Fee	$360
General Fee	40	General Fee	20
Matriculation Fee	5	Matriculation Fee	5
Dormitory Key Deposit	3	Dormitory Room & Board	390
Dormitory Breakage Deposit	10	Dormitory Breakage Deposit	10
Dormitory Room Rent	130	Gymnasium Outfit	5.50
Dormitory Activities Fee	3.50	Books and Supplies	45
Books, Instruments & Supplies	75		
Chemistry Supply Card	10		
Board	288		

- William Allen Nielson, ed., Annual Handbook, 1941, 1941.

FACT:

The University of Chicago offers four kinds of scholarships specially designed for high school students. They are awarded upon application or examination, as follows: Two-Year Honor Entrance Scholarships for men, One-Year Honor Entrance Scholarships for men and women, prize scholarships for men and women, and honor scholarships for students who have completed two years of high school work and desire to enter the Four-Year College.

- William Allan Nielson, ed., Annual Handbook, 1941, 1941.

Undergraduate Enrollment: Probable Field of Study

Women and men who are first-year college students indicate different preferences for probable fields of study. As Table 12 shows, majors with the greatest differences between the sexes are engineering (17 percentage points), professional[3] (11 percentage points), education (8 percentage points), and social science (7 percentage points).

QUOTE:

Women earn their place in theological study. Without these women, some of the seminaries would be facing major financial problems resulting from low enrollment. Enrollment of white male students has been going down.

- Roy Larson, Chicago Sun Times, October 28, 1978

Table 12

Percentage Indicating a Major as the Probable Field of Study, 1979

Major	Females	Males
Business	23%	25%
Professional	20	9
Social Science	14	7
Arts and Humanities	13	11
Education	12	4
Biological Science	4	4
Engineering	2	19
Physical Science	2	4
Technical (e.g., electronics, mechanics, data processing)	2	7
Communication	2	2
Other, Undecided	11	18

Source: Cooperative Institutional Research Program. American Freshman: National Norms for Fall 1979. Los Angeles: Graduate School of Education, University of California, 1979.

FACT:

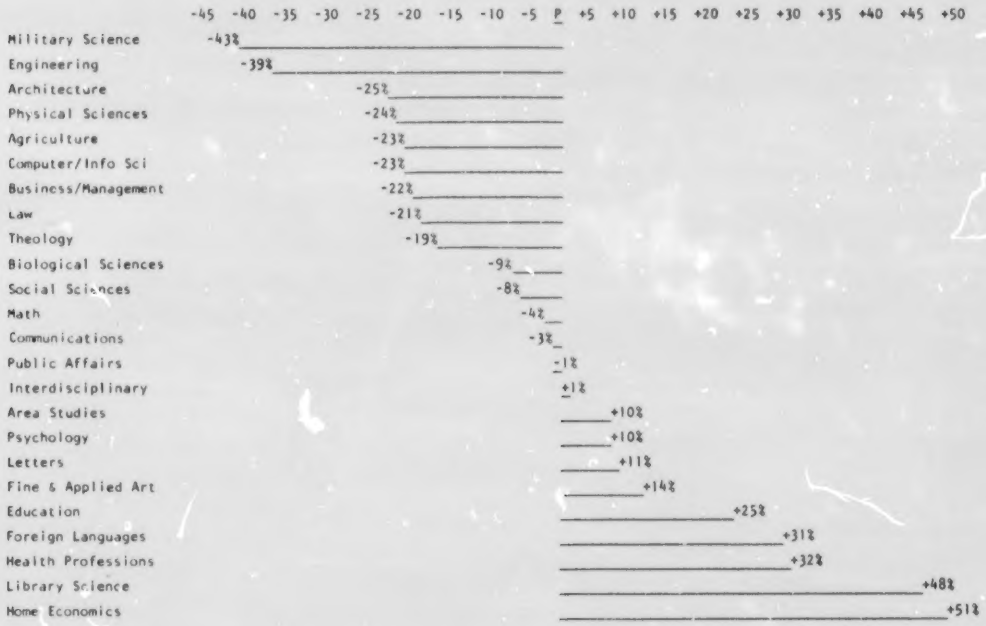
In 1971-72, women were 10% of the country's seminarians. By 1977-78, they were 15% of the seminarians.

If we consider the total percentage of women enrolled in upper-division programs (44%) to represent parity, even if not equality, then enrollment by program can be expressed as percentages greater than or less than parity. Women are most underrepresented in the fields of military science (-43%), engineering (-39%), architecture (-25%), physical sciences (-24%), agriculture (-23%), computer/information science (-23%), business/management (-22%), law (-21%), and theology (-19%). They are most overrepresented in the fields of home economics (+51%), library science (+48%), health professions (+32%), foreign language (+31%), and education (+25%). (Table 13)

[3]Professional includes architecture, home economics, economics, health technology, library science, nursing, pharmacy, pre-professional, and therapy. Considerably higher percentages of females than males chose health technology and nursing.

Table 13

Under and Overrepresentation of Women Enrolled in Upper-Division Programs by Field, 1975



Women are 44% of those enrolled in upper-division programs. This percentage is used as parity.

Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Upper Division Enrollment by Degree Field, Fall 1975: Summary Data. Washington, DC 1977.

In education, women are 25% greater than parity. In other words, women are 44% of those enrolled in upper-division programs, but are 69% of those in education. In spite of their number, women are underrepresented and overrepresented in some of the specialties within the field of education. For instance, women are 5% of those enrolled in industrial arts/vocational/technical education and are 99% of those enrolled in home economics education. (Table 14)

When college students were asked to rate 45 fields as to their masculinity or femininity, their scores were similar to the enrollment of women and men in each field. (Table 15) Four subfields of engineering, for example, were rated as the four most masculine fields. Upper-division enrollment figures show engineering as the field in which men are the second most overrepresented. Military science has a higher percentage male enrollment, but was not included in the list rated by college students. At the other extreme home economics was rated as the most feminine field. In actual enrollment, this is the field in which women are the most overrepresented. Of the 18 fields rated to be most masculine, 14 are listed in the table of over and underrepresentation and all 14 have considerably higher enrollment of males than would be predicted by the overall enrollment of women. Similarly, most of the 14 fields rated to be most feminine have a higher percentage of women enrolled than would be predicted by their overall enrollment in upper-division courses. The major exception is educational psychology that has more women than men enrolled (54% versus 46%) but the women are underrepresented because they are 69% of all those in education. However, it was the lowest rated of those fields categorized as feminine.

Women's studies courses and degree offerings are relatively new. These programs began to proliferate in the early 1970's. Florence Howe reports, in Seven Years Later: Women's Studies Programs in 1976, that over 15,000 such courses are offered at more than 1,500 post-secondary institu-

Table 14

Percentage of Women and Men Enrolled in Upper Division Education by Specialty, 1975

SPECIALTY	% FEMALE	% MALE	OVER & UNDER-REPRESENTATION OF WOMEN
Indus. Arts/Vocational/Tech. Educ.	5%	95%	-64
Agricultural Education	9	91	-60
Driver & Safety Education	18	82	-51
Physical Education	42	58	-27
Science Education	42	58	-27
Educational Administration	45	55	-24
Educational Psychology	54	46	-15
Music Education	55	45	-14
Mathematics Education	55	45	-14
Secondary Education	57	43	-12
Educational Supervision	59	41	-10
Junior High School Education	60	40	- 9
Health Education	60	40	- 9
Social Foundations	68	32	- 1
Student Personnel	68	32	- 1
Education, General	69	31	=
Adult & Continuing Education	72	28	+ 3
Educ. of Culturally Disadvantaged	73	27	+ 4
Art Education	74	26	+ 5
Business/Commerce/Distributive Educ.	76	24	+ 7
Educational Statistics & Research	78	22	+ 9
Educ. of Physically Handicapped	80	20	+11
Education of the Gifted	81	19	+12
Education of Multiple Handicapped	82	18	+13
Curriculum and Instruction	85	15	+16
Reading Education	86	14	+17
Elementary Education	86	14	+17
Special Education, General	87	13	+18
Education of Mentally Retarded	88	12	+19
Educ. of Emotionally Disturbed	89	11	+20
Special Learning Disabilities	90	10	+21
Nursing Education	91	9	+22
Speech Correction	92	8	+23
Education of Deaf	93	7	+24
Pre-Elementary Education	95	5	+26
Education of Exceptional Children	96	4	+27
Home Economics Education	99	1	+30

Note: Representation is calculated by subtracting the overall percentage of women in education from the percentage of women in a specialty. Since women are 69% of those enrolled in Education and 5% of those enrolled in Industrial Arts/Vocational/Technical Education, women are underrepresented by -64 percentage points. Since women are 99% of those enrolled in Home Economics Education, women are overrepresented by +30 percentage points.

Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Upper Division Enrollment by Degree Field, Fall 1975: Summary Data. Washington, DC, 1977.

tions. In the same year, Suzanne Howard, at the American Association of University Women, conducted a study of its 959 member colleges and universities--588 cooperated by returning information on several topics. Howard found that 64% of the responding colleges and universities offered women's studies courses and programs, with a higher percentage of women's colleges (80%) than co-ed colleges (62%) indicating these offerings. Furthermore, larger institutions were more likely to have women's studies courses. Forty-eight percent of schools with less than 1,000 students offered these courses, 58% of those with 1,000-5,000 offered them, 74% of those with 5,000-10,000 offered them, and 82% of those with more than 10,000 students offered these courses. Public schools were also more likely to offer women's studies courses than private schools (69% versus 59%).

Table 15

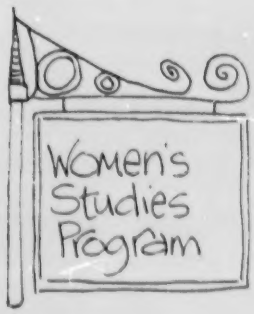
Stereotyped Imagery of the Masculinity-Feminity of Selected Disciplines

	MEAN
MASCULINE	
Electrical Engineering	1.58
Mechanical Engineering	1.59
Civil Engineering	1.62
Chemical Engineering	1.72
Agriculture/Forestry	1.93
Law	1.94
Physics	2.00
Dentistry	2.03
Business	2.10
Architecture	2.18
Geology	2.34
Chemistry	2.36
Medicine	2.50
Mathematics	2.61
Biochemistry	2.69
Economics	2.72
Political Science	2.90
Education Administration	2.99
NEUTRAL	
Bacteriology	3.05
Physiology	3.17
Zoology	3.18
Philosophy	3.23
History	3.34
Botany	3.39
Geography	3.44
Psychology	3.57
Journalism	3.61
Anthropology	3.63
Physical and Health Education	3.66
German	3.71
Sociology	3.80
FEMININE	
Educational Psychology	4.10
Speech	4.19
Spanish	4.29
Art	4.31
Dramatics	4.36
Music	4.39
Secondary Education	4.59
Social Work	4.71
English	4.83
French	4.98
Library Science	5.50
Elementary Education	6.01
Nursing	6.47
Home Economics	6.51

Source:

Saul D. Feldman. Escape from the Doll's House: Women in Graduate and Professional School Education. New York: McGraw-Hill, 1974.

Although the National Center for Education Statistics does not routinely gather information on the number of students enrolled in women's studies courses and programs, just the increase in the number of courses suggests a strong interest in them. We also lack data on the percentage of women and men enrolled in these courses. Personal experience and conversations with colleagues incline us to believe that more women than men take these courses, but we cannot state the actual differences nor can we estimate the differences caused by the topic (e.g., women in the media versus women in history).



Undergraduate Enrollment: Highest Degree Planned

In the area of "highest degree planned," the single largest difference is between the percentage of women (10%) and men (13%) saying they intend to obtain a professional degree. (Table 16) Other differences are small, and seem to be gradually disappearing over time, but continue to indicate that men are more likely than women to state intentions of obtaining higher degrees.

Undergraduate Enrollment: Transfer and Attrition

TRANSFER. An ongoing national study of a probability sample of high school seniors from the class of 1972 provides information on transfer rates of women and men. About 20,000 students were originally involved in the study. Half of these went on to college. By 1974 about 96% of those enrolled in college continued to provide information. Of those in a four-year college, 17% of the women had transferred to another four-year institution and 3% had transferred to a two-year college. Similar percentages of men had transferred to another four-year institution (15%) or to a two-year college (3%). Because the sophomore year concludes one's education in a two-year college, those students intending to continue their education will have made a transfer to a four-year college by the end of that year. Data on those members of the class of 1972 who began college in a two-year institution indicate that 4% of both the women and the men transferred from one two-year institution to another two-year institution during the first two years and that 24% of the women and 25% of the men transferred to a four-year institution. No apparent differences exist in the transfer rates of women and men, at least among the high school class of 1972.

Table 16

Highest Degree Planned
1969 and 1979

Degree	1969		1979	
	Females	Males	Females	Males
None	2%	2%	2%	2%
Associate	11	7	9	6
Bachelor's	44	34	38	35
Master's	33	33	32	32
Ph.D. or Ed.D.	6	13	8	9
M.D., D.O., D.D.S., or D.V.M.	2	6	6	7
LL.B. or J.D. (law)	-	2	4	5
B.D. or M. Div. (divinity)	-	-	-	1
Other	2	2	2	2

Source: Cooperative Institutional Research Program. The American Freshman: National Norms for Fall 1979. Los Angeles: Graduate School of Education, University of California, 1979.

ATTRITION. But what about attrition or withdrawal from college? With nearly equal numbers of women and men enrolling in college, it is important to see what happens to their enrollment rates as they continue their education. Is it true, as it once was, that women go to college to get a MRS degree and then drop-out? The answer is "no," at least for the high school class of 1972. By the fall of their junior year in college, 26% of both white women and white men, 29% of Black women and 31% of Black men, and 35% of Hispanic women and 33% of Hispanic men had withdrawn. These figures, combined with other data from this class, indicate that women are no more likely to withdraw from school than males for either academic or nonacademic reasons.[4]

QUOTE:

> The sum and substance of female education in America, as in England, is training women to consider marriage as the sole object in life, and to pretend that they do not think so.
>
> - Harriet Marineau, 1837

These findings do not support previous differences documented by Astin (1972), Cope (1971), and Spady (1970).[5] Astin examined the national dropout rates for the class of 1970. He found:

- 44% of the women and 39% of the men did not receive a degree and were not enrolled;
- 51% of the women and 55% of the men did not receive a degree;
- 23% of the women and 21% of the men did not return for a second year;
- 22% of the women and 16% of the men did not receive a degree, were not enrolled, and did nor request that a transcript be sent to another institution.[6]

Of those undergraduates enrolled in institutions of higher education in 1977, 51% of first-year students (both full-time and part-time), 48% of the second-year students, 47% of the third-year students, and 45% of the fourth-year students were women. Assuming no major differences in the numbers across the years, we can use this single year to note about a 6 percentage point difference between the percentage of women in the first-year class and in the fourth-year class. (Table 17)

Table 17

Undergraduate Comparison from First Year to Fourth Year
1977

Class	Women		Men	
	Full-Time	Part-Time	Full-Time	Part-Time
First Year	49%	55%	51%	45%
Second Year	47	49	53	51
Third Year	46	49	54	51
Fourth Year	45	45	55	55

Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Fall Enrollment in Higher Education 1977. Washington, DC, 1977.

[4] Department of Health, Education, and Welfare, National Center for Education Statistics, National Longitudinal Study of the High School Class of 1972: A Capsule Description of Second Follow-up Survey Data (Washington, DC, 1977).

[5] Department of Health, Education, and Welfare, National Center for Education Statistics, Withdrawal From Institutions of Higher Education: An Appraisal with Longitudinal Data Involving Diverse Institutions (Washington, DC, 1977).

[6] A. S. Rossie and A. Calderwood, eds., Academic Women on the Move (New York, 1973).

QUOTE:

> Of the 680,000 males who graduated from high school in 1955-56, 446,000 or 65.6 percent were registered in college in the fall of 1956; the corresponding percentage for women was 37.7 percent. Of the June 1959 high school graduates, 54 percent of the men but only 39% of the women were enrolled in college in the following October.
>
> - Jessie Bernard, Academic Women, 1964

Using this cross-sectional data rather than longitudinal data, in their senior year, women represent 24% of the women in the first-year class and men represent 31% of the men in the first-year class. If we look only at full-time students, then senior women are 33% of the women in the first-year class and that senior men are 38% of the men in the first-year class.

Undergraduate Enrollment: Looking Ahead

Current projections for enrollment in higher education indicate more women than men will enter colleges and universities. Between 1965 and 1975, the number of women increased by 120% while men increased by 69%. The projected percent change for 1975 to 1985 is 29% for women and 12% for men. Although the future change is not as great as in the past, it marks a continued increase in the numbers of women seeking higher education.[7]

UPDATE:

> Of the June 1977 high school graduates, 52% of the men and 49% of the women were enrolled in college in the following October.
>
> - Department of Labor, Students, Graduates, and Dropouts in the Labor Market, October, 1977

Portrayal in Textbooks

Although a large number of studies of children's textbooks have been done, only a handful concern the portrayal of women in college textbooks. There are too few of them to generalize findings. The individual studies, however, demonstrate the kind of research that has been done as well as indicate the need for additional studies. In a recent work,[8] Butler and Paisley found that:

"Betty Kirchner analyzed 10 introductory sociology textbooks randomly chosen from Books in Print. Fifty percent did not index a reference to women; 20 percent mentioned occupational wage differentials, but did not quantify the differential; and 50 percent characterized the contemporary American family as egalitarian.

Violence 73-6,191
Visions
see dreams
Wanclering Societies 42-8,50-65
War 390-462
Women
see Men, people
X-rated Movies
see pornography

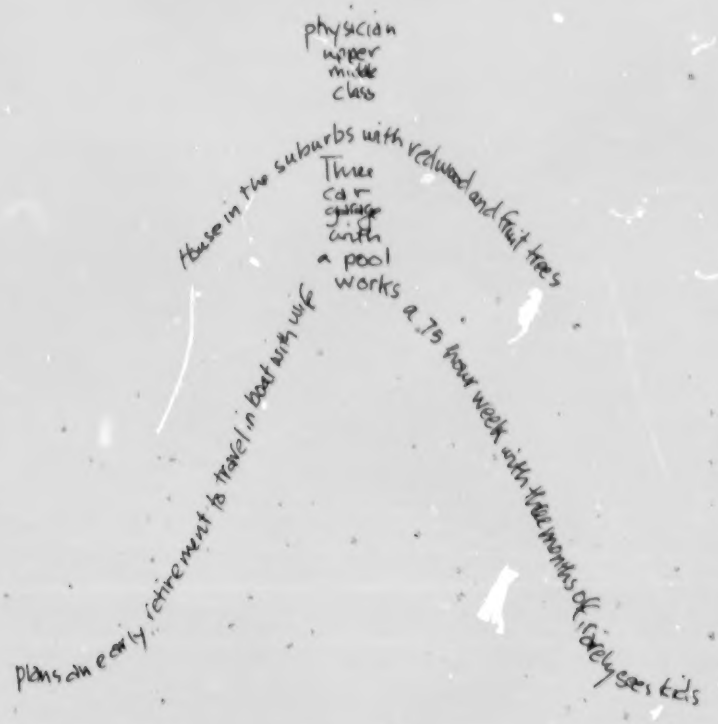
"Diane Scully and Pauline Bart analyzed 27 general gynecology texts published since 1943 that are still in use. Dividing the books into a pre-Kinsey, 1943 to 1952 period (6 books); a post-Kinsey/pre-Masters and Johnson, 1953 to 1962 period (9 books); and a post-Masters and Johnson, 1963 to 1972 period (12 books), Scully and Bart report the following omissions and misconceptions:

[7] Department of Health, Education, and Welfare, National Center for Education Statistics, Statistics of Trends in Education 1965-66 to 1985-86 (Washington, DC, 1977).

[8] Matilda Butler and William Paisley, Women and the Mass Media: Sourcebook for Research and Action (New York: Human Sciences Press, 1980).

1. Thirty-three percent of the books in the pre-Kinsey period, 11 percent in the post-Kinsey period, and 25 percent in the post-Masters and Johnson period do not index female sexuality.
2. Twenty-five percent of the books indexing female sexuality in the pre-Kinsey period, 62 percent in the post-Kinsey period, and 67 percent in the post-Masters and Johnson period discuss sex primarily as an urge for reproduction.
3. Fifty percent of the books indexing female sexuality in the pre-Kinsey period, 62 percent in the post-Kinsey period, and 89 percent in the post-Masters and Johnson period discuss the male's stronger sex drive.
4. Twenty-five percent of the books indexing female sexuality in the pre-Kinsey period, 37 percent in the post-Kinsey period, and 33 percent in the post-Masters and Johnson period discuss women as typically frigid.
5. Thirty-three percent of the books in the pre-Kinsey period, 56 percent in the post-Kinsey period, and 66 percent in the post-Masters and Johnson period do not index orgasm (clitoral/vaginal).
6. Nine percent of the books indexing orgasm in the pre-Kinsey period, 75 percent in the post-Kinsey period, and 50 percent in the post-Masters and Johnson period characterize vaginal orgasm as the mature response.

"Janice Birk, Linda Brooks, Joseph Juhasz, Linda Barbanel, Michele Herman, Robert Seltzer, and Sandra Tangri on the American Psychological Association's Task Force on Issues of Sexual Bias in Graduate Education analyzed the 11 most frequently used psychological textbooks. They found:



1. Fifty-eight percent of the sample passages were devoted to men, while 5 percent were devoted to women.
2. Fifteen percent of those described in charts and graphs were men, 6 percent were women, 6 percent were mixed groups, and 39 percent were neither (34 percent were animals).
3. Seventy-seven percent of those acknowledged in the preface were men; men acknowledged in the preface were thanked for criticism (47 percent) and contributions (41 percent), while women acknowledged in the preface were thanked for typing (44 percent), criticism

(21 percent), and editorial comments (19 percent).

4. In nine texts having subject indexes, 99 percent of the human references were to men.
5. In four texts using the convention of listing full names for women and initials for men, 94 percent of the author references were men.
6. In one text where the percentage of female authors cited was 20 percent, the actual percentage of female authors in the field was determined to be 35 percent.
7. Men were described in more vocational, family, and other roles than women.
8. Men had more personality and demographic descriptions but fewer physical descriptions than women."

If findings from the sociology and psychology texts hold for other fields of study, then the portrayal of women is both inadequate and inaccurate. The growth of women's studies courses can be partially traced to the textbook portrayal of women that often ignores their contributions to the past and the present.

Counseling

As was the case at the elementary and secondary level, we know little about counseling procedures at the post-secondary level. Several kinds of counseling are offered regarding general aptitude and interest, specific courses, personal adjustment, and health issues. A variety of types of individuals offer counseling--career counselors, dormitory counselors, departmental advisors, professors, and other students. Health and psychological counseling is frequently offered through the campus health service. Although data on extent of services for women and men, utilization of services by women and men, and kind of advice given to women and men are lacking, some information on health counseling services for women students exists. In the survey of AAUW member institutions, Suzanne Howard found:

1. Birth control information was provided by 68% of the institutions and referrals were made by 18%;
2. Abortion information was provided by 57% and referrals were made by 25%;
3. Gynecological information was provided by 53% and referrals were made by 34%;
4. Feminist counseling was provided by 52% and referrals were made by 13%.

Excluding feminist counseling, which is equally likely to be offered by women's colleges (54%) and co-ed schools (52%), birth control information, abortion information, and gynecological information are more likely to be offered by co-ed schools than women's colleges. (Table 18).

Table 18

Percentage of Co-ed Schools and Women's Colleges Offering Health and Counseling Services to Women Students

TYPE OF INFORMATION	CO-ED SCHOOLS	WOMEN'S COLLEGES
Birth control	69%	52%
Abortion	59	39
Gynecological	55	37

Source: Suzanne Howard. But We Will Persist. Washington, DC: American Association of University Women, 1978.

These differences are probably explained more by size of student body than by different patterns for co-ed and women's colleges. (Table 19) Since the smaller institutions (less than 1,000 students) are the least likely to provide the service and most likely to make referrals and since many of the women's colleges are small institutions, it is reasonable to conclude that the differences between co-ed schools and women's colleges are not philosophical. A second, contributing explanation may be that a higher proportion of the women's colleges than the co-ed schools are dominated by religious groups that do not offer birth control and abortion counseling as a matter of policy.

Financial Concerns

Cost of an Education

According to information on the high school class of 1972, no difference by sex in the cost of an education can be determined across the four years of college. For those students in college from 1972 to 1976, females paid an average of $2317 while males paid an average of $2396. As for concerns about the cost of the college degree, the data displayed in Table 20 indicates that women are somewhat more concerned than men.

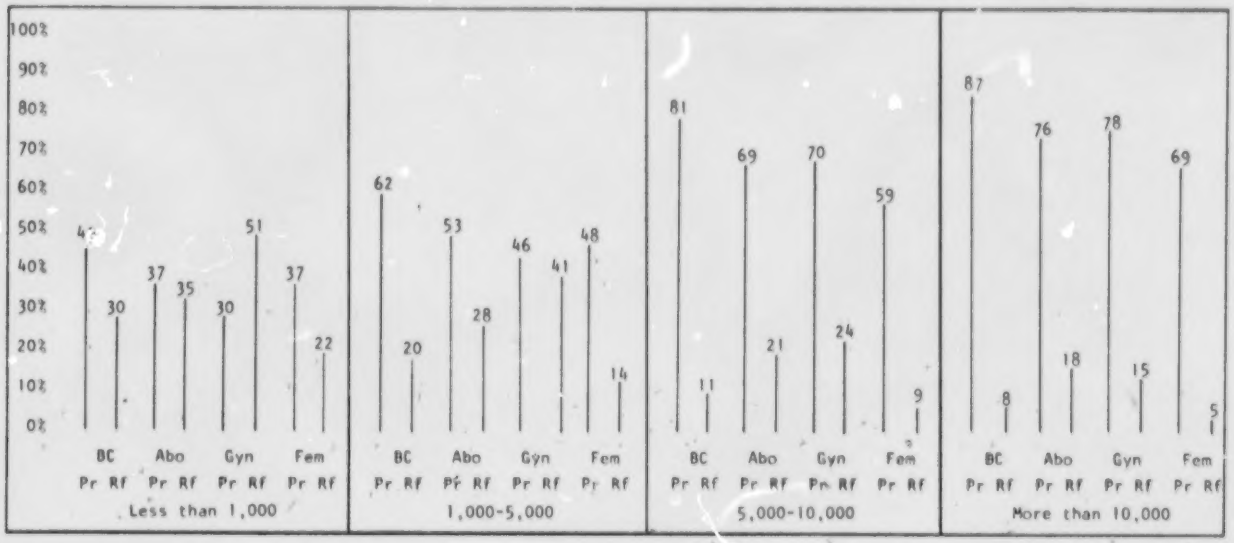
Sources for Financing an Education

The first-year college students in the fall of 1979 had a number of possible sources of financial support. These included parental or family aid, nine types of grants or scholarships, four types of loans, and three categories for personal savings and earnings. When grouped by these categories in Table 21, the pattern of support for females and males is virtually undifferentiated. The only real difference is in the employment category, males are more likely to indicate use of money earned than are females. The pattern has changed considerably over the past 10 years. In 1969 parental aid was more important to both sexes and proportionately more so to women. Fewer relied on scholarships/grants and loans and more used personal savings and earnings. Greater differences between females and males appeared. Instead of a 5 percentage point difference in the category of savings and earnings, there was a 15 percentage point difference. Instead of no difference in parental aid, there was a 15 percentage point difference.

Data again taken from the high school class of 1972 indicate that in their first year of college females and males had somewhat different patterns of support. The women were more likely to use parental aid and loans, while the men were more likely to use personal savings or earnings. (Table 22)

Table 19

Percentage of Institutions Providing or Making Referrals for Birth Control, Abortion, and Gynecological Information, and Feminist Counseling by Size of Institution, 1976



BC = Birth Control Abo = Abortion Gyn = Gynecological Fem = Feminist Counseling Pr = Provides Rf = Referrals

Source: Suzanne Howard. But We Will Persist. Washington, DC: American Association of University Women, 1978.

Table 20

Percent Concerned about Financing College
1979

	Women	Men
No Concern	30%	38%
Some Concern	54	49
Major Concern	16	13

Source: Cooperative Institutional Research Program. The American Freshman: National Norms for Fall, 1979. Los Angeles: Graduate School of Education, University of California, 1979.

Table 21

Sources of Financial Support for College of $500 or More[1]

Source	1969 Females	1969 Males	1979 Females	1979 Males
Scholarships, Grants, Gifts	18%	18%	53%	53%
Parental or Family Aid	58	43	47	47
Repayable Loan	14	12	22	23
Personal Savings or Earnings	21	36	13	18

[1]Data from 1969 only indicates these categories were named as "major sources of support for college expenses." In 1979, we use responses to the categories of $500 or more.

Source: Cooperative Institutional Research Program. The American Freshman: National Norms for Fall, 1979. Los Angeles: Graduate School of Education, University of California, 1979.

"In a lawsuit filed against the Secretary of the Navy, sophomore Kimberly Kovach charged the Navy with using a 'double standard' in awarding its ROTC scholarships. The scholarships provide a $100-a-month stipend plus tuition fees and textbooks. In 1975-76, the scholarships went to 1,988 men and 16 women.

"Kovach charged that not only must women attain higher SAT scores than men (1,200 combined SAT scores compared with a 1,000 combined score), but that women are allowed to compete only with other women on a national basis for a pre-set number of scholarships, while men can compete on a regional basis. Kovach's SAT score (1,150) disqualified her; had she been a male she would have been eligible. The U.S. District Court in Delaware noted that men who scored lower than Kovach were awarded four-year scholarships in 1975.

"U.S. District Court Judge Edwin Steel, Jr. stated, however, that Kovach is not entitled to equal treatment. Since the federally-funded ROTC scholarship program is designed to produce officers for combat vessels, and since women are forbidden by federal statute from serving on combat vessels, the Navy has intentionally kept a low quota for women. The court concluded that the Congressional classification of women and men into two categories for service on combat vessels does not violate Kovach's right to equal protection under the Fifth Amendment [Kovach v. Middendorf, 424 F. Supp. 72, 1976]."

Reported in Newsletter of the Project on the Status and Education of Women, March 1978.

Influence of Financial Aid on Obtaining an Education

In looking at similarities and differences in financial support for college, two other questions come to mind. Do women and men receive equal amounts of monies in the form of scholarships and fellowships? Does the amount of money received (or even receiving any money) influence the probability that one will complete college? Unfortunately,

Table 22

Sources of Financial Support for College

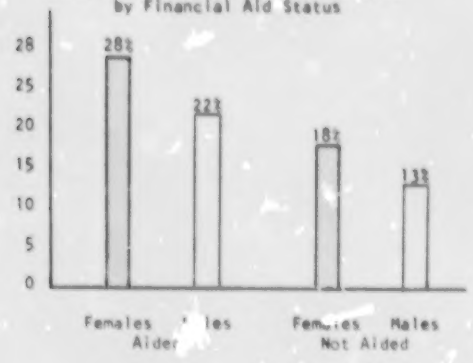
Source	Females	Males
Parental Aid	56%	51%
Personal Savings or Earnings	20	27
Grants and Transfers	14	15
Repayable Loans	10	7

Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Student Financial Aid: Institutional Packaging and Family Expenditure Patterns. Unpublished report.

we do not have recent information to answer the first question, but it is a question not to be ignored. "Information from the students of the high school class of 1972, however, strongly suggests that those who completed a bachelor's degree by 1976 were more likely to have received some financial aid. The presence of financial aid seems to contribute to the completion rate of both sexes. (Table 23)

Table 23

Percent Completing Bachelor's Degree by Financial Aid Status



Source: Department of Health, Education, and Welfare, National Center for Education Statistics. The Condition of Education. Washington, D.C., 1978.

Participation in sports and the quality of that participation is determined in part by availability of a sport, funds for recruitment/scholarships/travel/salaries, and access to coaches and facilities. The enactment of Title IX of the Education Amendments of 1972 and a number of law suits have considerably altered the score-card on athletics.

"In 1974, when the U.S. Department of Health, Education, and Welfare 'began to have Title IX conferences in different sections of the country, patterns were different,' [Charles] Henry [chair of the Big 10 Conference] said. 'At that time, annual athletic budgets for women at Big 10 schools were around $3,500, while men got slightly over $1 million.

"Now the range is from $250,000 to $750,000 for women, and around $3 million for men, Henry said."[9]

Athletics and Extracurricular Activities

Athletics

QUOTE:

> It is obvious that the objections concerning the participation of women in athletics have long ago been met. The same liberalism which has brought to woman interest in business, in industry, in community affairs, in politics, and in citizenship, has brought to her freedom in athletics and in sports so that we look upon these activities today as being strong forces in her development.
>
> - Mabelle Babcock Blake, Guidance for College Women, 1926

[9] Char Mollison, "Cutting Up the Big 10 Pie," In The Running, Fall 1978, 4. Published by SPRINT, a project of the Women's Equity Action League Educational and Legal Defense Fund.

Table 24

Percentage of Institutions Offering Athletics by Type of Institution, Sex, and Sports Category, 1975-76

Sports Category	2-Year Colleges Female	2-Year Colleges Male	4-Year Colleges Female	4-Year Colleges Male
Competitive Athletics				
Contact Sports*	46%	75%	61%	76%
Noncontact Sports	57	65	67	70
Intramurals				
Contact Sports*	43	60	48	56
Noncontact Sports	56	55	60	61
Physical Education Classes	66	64	58	56

*Football is excluded from this category.

Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Athletic Injuries and Deaths in Secondary Schools and Colleges. Washington, DC, 1979.

Some, but clearly not all, of this difference is explained by the different kinds of expenditures that women's budgets versus men's budgets must pay for.

As women become more involved in athletics in high school, they will demand more involvement in college sports. This is already happening, and the trend is likely to continue for some time. In a survey of 42 women's colleges, "institutional spending for competitive intercollegiate athletic programs at [these] colleges has more than tripled in the last five years." (Reported by the Women's College Coalition, 1978). More than one third of the colleges began construction of athletic facilities during this period, and team sports, such as basket ball and volleyball, began becoming more popular than individual sports, such as tennis or swimming.

Women cannot participate unless sports are offered. In spite of the trend, recent data indicate that both two-year colleges and four-year colleges are still more likely to offer contact and noncontact competitive athletics as well as contact intramurals for males than for females. Physical education classes and noncontact intramurals are offered equally for females and males. (Table 24) As long as schools continue to offer more for males they will be able to provide more scholarships for males since these are usually based on participation rates.

A frequently cited reason for keeping women out of sports has been their high injury rates. Information on injury rates now shows that women are less likely to be injured than are men in four of the five categories (contact and noncontact competitive athletics, contact intramural sports, and physical education classes). Only in the noncontact intramurals do women have an injury rate that exceeds their participation rate. (Table 25)

Table 25

Percentage of Women Injured in Athletics

	Women as % of Total	Women as % of Total Injured
Competitive Athletics		
Contact Sports*	27%	17%
Noncontact Sports	38	23
Intramurals		
Contact Sports*	20	19
Noncontact Sports	29	32
Physical Education Classes	49	44

*Football is excluded from this category.

Source: Department of Health, Education and Welfare, National Center for Education Statistics. Athletic Injuries and Deaths in Secondary Schools and Colleges. Washington, DC 1979.

FACT: The number of females and males at two-year colleges participating in athletics:

	F	M
Competitive Athletics		
Contact Sports*	13,295	44,605
Noncontact Sports	15,243	30,684
Intramurals		
Contact Sports*	38,601	134,616
Noncontact Sports	73,717	133,866
Physical Education Classes	418,448	540,368

FACT: The number of females and males at four-year colleges participating in athletics:

	F	M
Competitive Athletics		
Contact Sports*	38,339	103,126
Noncontact Sports	50,687	82,445
Intramurals		
Contact Sports*	191,288	772,972
Noncontact Sports	247,162	603,117
Physical Education Classes	516,328	532,303

*Football is excluded from this category.

Source:

Department of Health, Education, and Welfare, National Center for Education Statistics, Athletic Injuries and Deaths in Secondary Schools and Colleges (Washington, DC, 1979).

QUOTE:

[Title IX] guidelines will still require per capita treatment on athletic scholarships, and that will provoke fierce resistance from many universities. The scholarships must be in amounts proportional to the number of men and women participating in sports programs.

- Gil Sewall with Mary Hager "The New Sex Rules," Newsweek, December 3, 1979.

QUOTE:

Title IX covers all forms of discrimination, but the battlelines have been drawn most clearly on the athletic field. Many of the nation's leading universities think that equalizing treatment of women will hobble their high-powered men's sports programs, but the Federal government apparently doesn't agree.

- Gil Sewell with Mary Hager, "The New Sex Rules," Newsweek, December 3, 1979.

Extracurricular Activities

Suzanne Howard's study of the 588 member colleges and universities of the American Association of University Women contributes to our understanding of women and men's leadership roles in extracurricular activities. In 1976 she asked these schools to indicate if a man or a woman had held each of nine positions during the preceeding three years. When she charted only those colleges where men had held the positions for all three years and where women had held the positions for two or three years, the pattern became clear. (Table 26) Men usually hold the elected positions (ones often associated with power), while women hold the appointed positions, such as editor.

Table 26

Percentage in Campus Leadership Positions

POSITION	% OF SCHOOLS WITH: WOMEN (2-3 Yrs)	MEN (3 Yrs)
President, Student Body	17%	56%
Chair, Student Union	27	43
Chair, Judicial Board	27	48
Editor, Yearbook	56	18
Editor, Campus Paper	36	25
Chair, Student Court	19	52
Chair, Residence Hall Council	35	31
Chair, Community Relations	37	45
Member, Board of Trustees	18	38

Source: Suzanne Howard. But We Will Persist. Washington, DC: American Association of University Women, 1978.

Examining these same leadership positions in institutions of different sizes, women appear more likely to hold positions in smaller institutions. (Table 27) Between 1973 and 1976, for example, women were 44% of the student body presidents at colleges with less than 1,000 students. They comprised only 4% of the presidents in institutions with more than 10,000 students. On these small campuses, women are more likely than men to find themselves as student body president, student union chair, judicial board chair, yearbook editor, campus paper editor, student court chair, and residence hall council chair. Men, on the other hand, are more likely to be community relations chair and members of the board of trustees. In the largest institutions, women are more likely than men only to be yearbook editor. Every other leadership position is held primarily by men (except chair of community relations, which is equally likely to be held by women or men).

QUOTE:

To summarize these data, in student leadership positions men predominate in numbers and dominate in power.

- Suzanne Howard, 1978

Outcomes

The educational outcomes of attending college are varied indeed. The number of types may, in fact, be inestimatable. But those with available data include extent of college attendance, grades obtained, degrees earned and field of specialization, and post-baccalaureate outcomes, such as use of leisure time, employment, job satisfaction, and graduate study.

Extent of College Attendance

In 1947 white females and males between 20 and 24 years were equally likely to have attended some college. (Table 28) By 1969, however, a smaller percentage of white females than males had attended some college. Although nonwhite females and males comprise a lower percentage of those attending college, their percentages, according to sex, are much closer to each other than white females and males, and the lines are reversed with nonwhite females being somewhat more likely than nonwhite males to have attended some college by the age of 24.

The data on educational attainment for 1977 indicate that 40% of the white females versus 44% of the white males attended at least some college. Among Blacks, 33% of the females and 30% of the males attended some college. Among those of Spanish

Table 27

Percent in Campus Leadership Positions[1] by Size of Institution

Position	Less than 1,000[2]		1,000 - 5,000		5,000 - 10,000		More than 10,000	
	% Women	% Men	% Women	% Men	% Women	% Men	% Women	% Men
President, Student Body	44%	40%	17%	54%	2%	71%	4%	62%
Chair, Student Union	59	24	51	45	23	48	11	62
Chair, Judicial Board	48	24	29	49	9	66	13	56
Editor, Yearbook	65	14	62	16	50	19	38	27
Editor, Campus Paper	54	18	39	25	28	32	22	24
Chair, Student Court	38	32	22	51	8	60	9	60
Chair, Residence Hall Council	69	12	38	29	25	34	9	47
Chair, Community Relations	40	53	39	45	25	56	33	33
Member, Board of Trustees	19	29	23	34	8	57	15	38

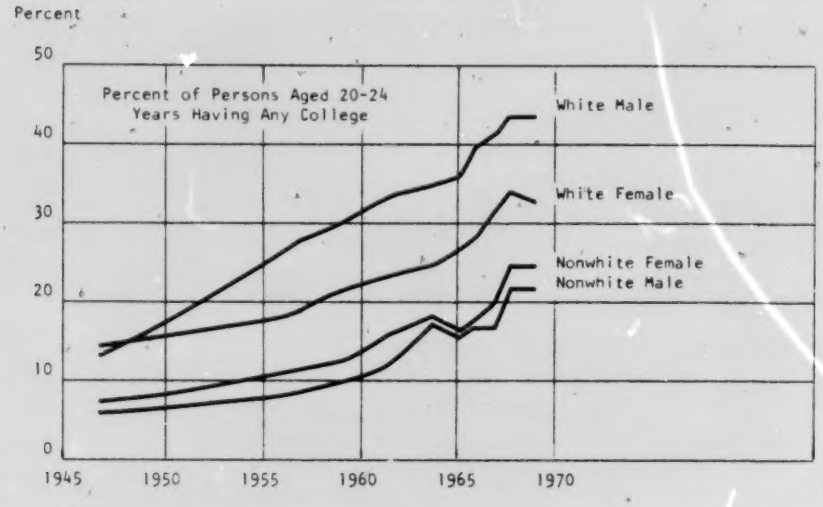
[1] Instances were tabulated in which women held these offices at least two-thirds of the time (1973-76) and men held these offices for all three years.

[2] Women's colleges were not included.

Source: Suzanne Howard. But We Will Persist. Washington, DC: American Association of University Women, 1978.

Table 28

Educational Attainment
1947-1969



Source: A. L. Ferriss. Indicators of Trends in the Studies of American Women. New York: Russell Sage Foundation, 1971.

origin, 22% of the females and 29% of the males attended some college. Since earlier data group nonwhites together, the trend is difficult to determine. For the whites, however, the gap between females and males is closing.[10]

Information from the U.S. Commission on Civil Rights, displayed in Table 29, provides a comparison of the educational attainment of various racial/ethnic groups for the years 1960 and 1976. In 1960 majority females[11] were less than half as likely as males to have completed college by the age of 29. Sixteen years later the gap had narrowed somewhat, with females completing college two thirds as often as males. Striking differences also occur between the minority groups and the majority. Among both females and males, Japanese Americans, Chinese Americans, and Pilipino Americans have attainment rates as high or higher than majority females and males. Among the males, the American Indian/Alaskan Natives had the lowest completion rate in 1960 and had one of the two lowest in 1976. Among the females, the Puerto Ricans had the lowest completion rate in 1960 and shared that low position with American Indian/Alaskan Natives in 1976.

Minority groups who had a lower percentage than the majority for the same sex changed somewhat over time both in percentage points and in the ratio of minority to majority graduates. (Table 29) Unfortunately, among the females the gap widened for American Indian/Alaskan Natives (.22 to .18) and Blacks (.66 to .50). The gap narrowed for the Puerto Ricans (.11 to .18) but the difference is still considerable. Most of the minority males made gains against the completion rate of the majority males. The American Indian/Alaskan Natives, Blacks, Mexican Americans, and Puerto Ricans, however, are still one third or less than the majority males.

[10] Department of Commerce, Bureau of the Census, Population Characteristics, Series P-20, No. 314, "Educational Attainment in the United States: March 1960 and 1976" (Washington, DC, 1977).

[11] Majority refers to whites not of Hispanic origin. This is not the same as the term "white" used by the Census Bureau since white Puerto Ricans and Mexican Americans are included in that group but are separate here.

Table 29

Percentage of 25 to 29 Year Olds Who Have Completed At Least 4 Years of College, 1960 and 1976[1]

	Percentage		Ratio	
	1960	1976	1960	1976
Females				
American Indian/Alaskan Natives	2%	4%	.22	.18[2]
Blacks	.6	11	.66	.50
Mexican Americans	2	5	.22	.23
Japanese Americans	13	35	1.44	1.59
Chinese Americans	26	44	2.89	2.00
Pilipino Americans	16	51	1.78	2.31
Puerto Ricans	1	4	.11	.18
Majority	9	22	1.00	1.00
Males				
American Indian/Alaskan Natives	3%	8%	.15	.24
Blacks	4	11	.20	.32
Mexican Americans	4	11	.20	.32
Japanese Americans	35	53	1.75	1.56
Chinese Americans	49	60	2.45	1.76
Pilipino Amricans	19	34	.95	1.00
Puerto Ricans	4	6	.20	.18
Majority	20	34	1.00	1.00

[1] In the original report, all groups were compared with the majority male. We felt a comparison within sex more appropriate for this paper.

[2] The ratios can be read as follows: The completion rate for American Indian/Alaskan Native females is 18% of the rate for majority females.

Source: U.S. Commission on Civil Rights. Social Indicators of Equality for Minorities and Women. Washington, DC, 1978.

Grades Obtained

Data reported earlier in this volume indicate that females make better grades than males in high school. Does the pattern hold during the college years? A survey, based on students' recollections of their grades, strongly suggests that it does. Twenty-eight percent of first-year college females versus 20% of the males reported a B or better grade point average. When we look at the type of institution, the percentage point spread between females and males appears even greater at a two-year college (26% versus 16%) and four-year colleges (29% versus 18%), while it is slightly less at universities (31% versus 24%). At the other end of the distribution, 5% of the females and 10% of the males reported a GPA of D.[12]

Degrees Earned and Fields of Specialization

ASSOCIATE DEGREES. Statistics compiled on associate degrees are usually combined with other pre-baccalaureate formal degrees. Although some four-year institutions offer such programs, the overwhelming number of associate degrees are awarded by two-year institutions. Of the associate degrees awarded in 1976, 85% were awarded to whites, 8% to Blacks, 5% to Hispanics, 1% to Asian or Pacific Islanders, and less than 1% to American Indian/Alaskan Natives. These percentages varied little by sex.

- 47% of the whites are female;
- 53% of the blacks are female;
- 48% of the Hispanics are female;

[12] Alan E. Bayer et al., "The First Year of College: A Follow-Up Normative Report," ACE Research Reports, 1970, as quoted in A. S. Rossi and A. Calderwood, eds., Academic Women on the Move (New York, 1973).

- 47% of the Asian or Pacific Islanders are female;
- 45% of the American Indian/ Alaskan Natives are female.

But what about differences between females and males in the curriculum? Between 1970 and 1977, women have become a larger percentage of those receiving associates in every occupational curriculum, with the exception of health services where they have declined by three percentage points. Women have made their largest gain (12 percentage points) in natural science technologies (includes agriculture, forestry, food services, home economics). In spite of these gains, however, women are still either over or underrepresented in several occupational categories. (Table 30)

BACHELOR'S DEGREES. Historical data for bachelor's degrees awarded to women and men date back to 1869. (Table 31) Over the years, women rose from receiving 15% of the degrees to receiving 47% in 1977-78. The increase, however, was not a constant one over that hundred year period. In 1939-40 women received 41% of the bachelor's degrees, but by 1949-50 the percentage had dropped to 24%.

With women now receiving a larger percentage of the bachelor's degrees each year, the next issue becomes one of ethnicity. In 1976, 88% of bachelors were awarded to whites, 6% to Blacks, 3% to Hispanics, 1% to Asian or Pacific Islanders, and less than 1% to American Indian/Alaskan Natives. The largest sex differentiation is found for Blacks--females are 8% of those earning a bachelors, while males are 5%. When we compare the percentage of females and males in each of the racial/ethnic groups we find:

- 45% of the whites are female;
- 57% of the Blacks are female;
- 48% of the Hispanics are female;
- 44% of the Asian or Pacific Islanders are female;
- 45% of the American Indian/ Alaskan Natives are female.

Although females are only slightly less likely than males to receive a bachelors, significant differences do appear in their fields of specialization. The decade of the 1970's has been one of considerable change for women and those changes can also

Table 30

Percent of Associate Degrees and Other Formal Awards Received by Women 1970-1977

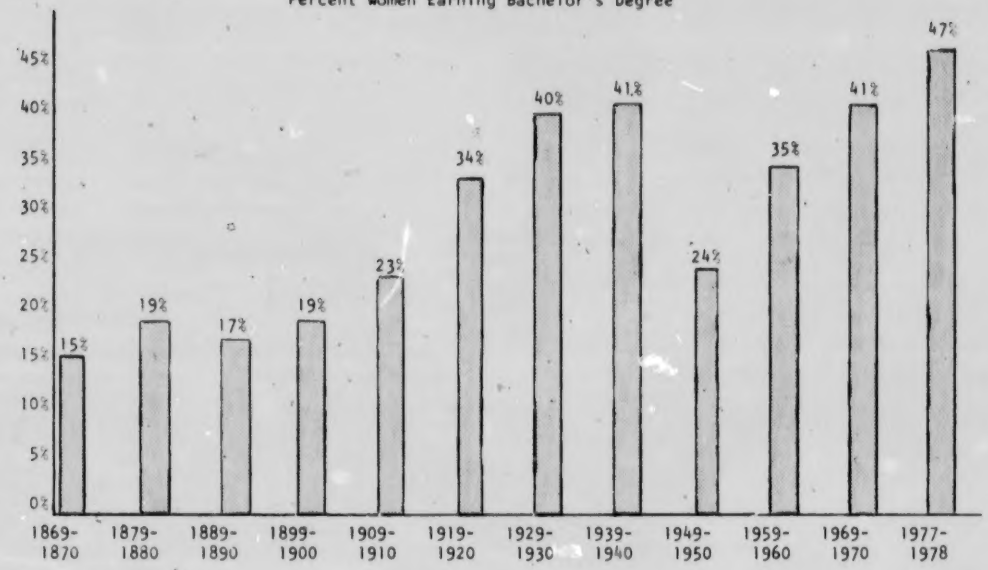
Curriculum Category	1970-71[1]	1976-77[2]	Percentage Change
Occupational Curricula	42%	50%	+ 8
Science/Engineering-Related	38	48	+10
Data Processing Technologies	32	42	+10
Health Services/Paramedical Technologies	90	87	- 3
Mechanical/Engineering Technologies	1	4	+ 3
Natural Science Technologies	22	34	+12
Nonscience/Nonengineering-Related	47	52	+ 5
Business and Commerce Technologies	49	56	+ 7
Public Service-Related Technologies	40	40	=

Source: [1]Department of Health, Education, and Welfare, National Center for Education Statistics. Associate Degrees and Other Formal Awards Below the Baccalaureate: Analysis of 6-Year Trends. Washington, DC, 1978.

[2]Department of Health, Education, and Welfare, National Center for Education Statistics. Digest of Education Statistics 1979. Washington, DC, 1979.

Table 31

Percent Women Earning Bachelor's Degree[1]



[1]The category combines bachelor's and first-professional degrees.

Source: Department of Health, Education, and Welfare, National Center for Education Statisitics. Digest of Education Statistics 1979. Washington, DC, 1979. 1977-78 data is drawn from Department of Health Education, and Welfare, National Center for Education Statistics. Earned Degrees Conferred, 1977-78, Preliminary Summary. Washington, DC, 1979.

be found in the fields of study. As shown in Table 32, the areas with great change between 1971 and 1978 are law (+24%), agriculture and natural resources (+21%), business and management (+18%), and interdisciplinary studies (+18%). But in spite of these increases, some fields are still dominated by one sex or the other. Five fields are heavily dominated by women--home economics (96%), library science (88%), health professions (80%),[13] foreign languages (76%), and education (72%).

Education was not always "feminine." In 1949-50, almost equal percentages of women and men were awarded the bachelor's degree in education (women received 49% and men received 51%). (Table 33) Two years later, women received 61% of the degrees, establishing a pattern that continued until 1963-64, when it reached a high of 76%. These percentage changes were more the result of men moving into other fields than of large numbers of women moving into education. In 1949-50, 31,398 degrees were awarded to men and 30,074 to women. The number of men began to decrease after that year, reaching a low of 16,754 in 1953-54. By the time that women received 76% of the degrees in 1963-64, the number of men (26,654) was still below the 1949-50 level.

Although education is a female dominated field, one finds stereotypic patterns of males and females within specialized fields. Bachelor's degrees awarded in 36 specialities show that while women earn 72% of the bachelors overall, they earn only 8% of those in industrial arts/vocational/technical education and 9% of the bachelors in agricultural education. (Table 34) At the other end of the continuum, women earn 99% of the bachelors in home economics education and 100% of those in education of the gifted. Women are clearly underrepresented by 64% in industrial arts/vocational/technical education and 63% in agricultural education and are overrepresented by 27% in

[13]The health professions include nursing and medical technology.

home economics education and 28% in education of the gifted.[14]

With the percentage of women receiving degrees in almost every field increasing, we need to look at the distribution of degrees by field for each sex and determine the extent to which women and men are choosing different fields. There are 14 fields in which at least 3% of the women or the men received degrees in 1977. (Table 35) Women are most frequently in education (24%), social sciences (11%) and health professions (11%), while men are most frequently in business (24%), social sciences (14%), and engineering (10%). These fields account for 46% of the degrees awarded to women and 48% of the degrees awarded to men, and although women and men are almost equally likely to receive degrees in just a few fields, the fields are different ones.

Post-Baccalaureate Outcomes: Use of Leisure Time

Do females and male college graduates use their leisure time differently? Lewis Solmon and Nancy Ochsner studied the behavior of college students in 1970 and again in 1977 after they were out of college. Because of the sample size, they restricted

Table 32

Percentage of Women Among Bachelor's Degree Recipients by Discipline Division

Discipline	1971	1978	Percentage Point Change
Law	5%	29%	+24%
Agriculture and Natural Resources	4	25	+21
Business and Management	9	27	+18
Interdisciplinary Studies	29	47	+18
Psychology	45	59	+14
Architecture and Environmental Design	12	24	+12
Communications	35	47	+12
Computer and Information Sciences	14	26	+12
Biological Sciences	29	39	+10
Physical Sciences	14	22	+ 8
Area Studies	53	60	+ 7
Engineering	1	6	+ 5
Health Professions	77	80	+ 3
Mathematics	38	41	+ 3
Social Sciences	37	40	+ 3
Fine and Applies Arts	60	62	+ 2
Foreign Languages	75	76	+ 1
Public Affairs and Services	49	50	+ 1
Home Economics	97	96	- 1
Education	74	72	- 2
Theology	27	24	- 3
Letters	61	57	- 4
Library Science	92	88	- 4

Source: Department of Health, Education and Welfare, National Center for Education Statistics. Degree Awards to Women: An Update. Washington, DC, 1979. Department of Health, Education, and Welfare, National Center for Education Statistics. Early Release: Earned Degrees Conferred, 1977-78. Washington, DC, 1979.

[14] Adding to the imbalance between women and men in education, a point receiving greater attention in Volumes 1 and 3, are the relative positions of women and men in the job hierarchy. Men hold a significantly higher percentage of the top administrative positions. Women, conversely, are overrepresented in the lower paying jobs both as teachers and administrative aides.

their analysis to white females and males who had a bachelors and were not currently in school. When rank ordered the females and males had similar activities, with the exceptions that females were more likely to use their time cooking and men were more likely to spend time participating in sports. (Table 36)

QUOTE:

Participation in leisure activities ranges from 24 hours per week for male English majors to 14 hours per week for female education majors and business majors of both sexes. In most cases, men spend more hours in leisure activities than women.

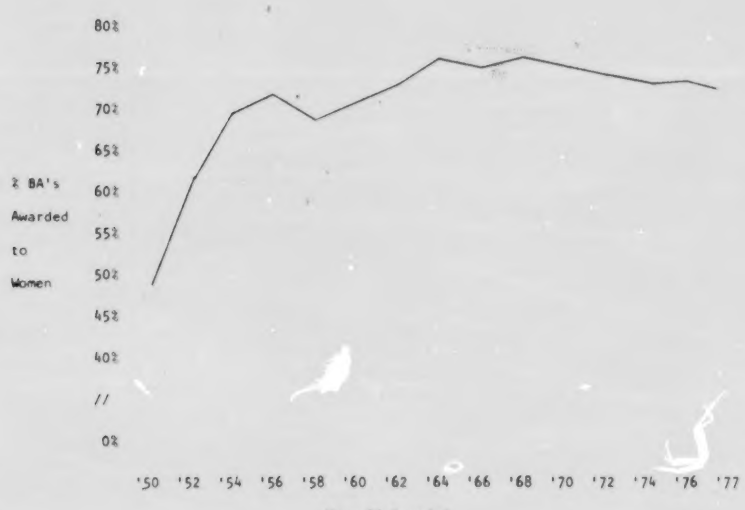
- Lewis C. Solmon and Nancy Ochsner

Post-Baccalaureat Outcomes: Employment

In the spring of the senior year of college, students frequently visit the placement office to investigate types of jobs and specific job openings. A guide used in these offices is the College Placement Annual. Over the years, the Annual has changed in several ways. Two particularly important changes are in the areas of language (sex specific versus general) and pictures. The College Placement Annual, 1959, listing more than 1600 employers, stated that "all occupational openings listed are available to men unless designated as 'w only.' Those open to both men and women have the designation 'w.'" A woman graduating that year would quickly surmise that she could apply for jobs as secretary, librarian, dietition, research aide, stenographer, nurse, home economist, and other stereotypic positions. Looking through the publication, she also quickly concluded that men, not women, work. The illustrations depicted 157 men and only 14 women working. If the student generalized from this to the job market, she or he would believe that women comprised only 6%

Table 33

Bachelor's Degrees Awarded in Education in 1949-59 to 1976-77



Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Digest of Education Statistics 1977-1978. Washington, DC, 1978. Department of Health, Education, and Welfare, National Center for Education Statistics. Digest of Education Statistics 1979. Washington, DC, 1979.

Table 34

Percentage of Women and Men Earning Bachelor's Degrees in Education by Specialty, 1976-77

Specialty	% Female	% Male	Over and Under-Representation of Women
Indus. Arts/Vocational/Tech. Educ.	8%	92%	-64%
Agricultural Education	9	91	-63
Driver and Safety Education	21	79	-51
Science Education	43	57	-29
Physical Education	45	55	-27
Educational Supervision	53	47	-19
Educational Administration	55	45	-17
Music Education	58	42	-14
Mathematics Education	58	42	-14
Secondary Education	59	41	-13
Junior High School Education	64	36	- 8
Health Education	66	34	- 6
Social Foundations	67	33	- 5
Student Personnel	68	32	- 4
Adult and Continuing Education	71	29	- 1
Art Education	75	25	+ 3
Business/Commerce/Distributive Educ.	79	21	+ 7
Educ. of Physically Handicapped	81	19	+ 9
Education, General	82	18	+10
Curriculum and Instruction	82	18	+10
Educ. of Culturally Disadvantaged	83	17	+11
Educational Psychology	85	15	+13
Reading Education	85	15	+13
Education of Multiple Handicapped	88	12	+16
Elementary Education	88	12	+16
Special Education, General	89	11	+17
Education of Mentally Retarded	89	11	+17
Educ. of Emotionally Disturbed	89	11	+17
Special Learning Disabilites	93	7	+21
Speech Correction	93	7	+21
Education of Deaf	94	6	+22
Education of Exceptional Children	95	5	+23
Pre-Elementary Education	96	4	+24
Nursing Education	98	2	+26
Home Economics Education	99	1	+27
Education of the Gifted	100	0	+28

Note: Over and underrepresentation is calculated by subtracting the overall percentage of women receiving a BA in Education from the percentage of women in a specialty. Since women are 72% of those earning a BA in education and 8% of those earning a BA in Industrial Arts/Vocational/Technical Education, women are underrepresented by 64 percentage points. Since women are 99% of those earning a BA in Home Economics Education, women are overrepresented by 27 percentage points.

Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Digest of Education Statistics 1979. Washington, DC, 1979.

Table 35

Distribution of Bachelor's Degrees by Discipline Division

Discipline	Women 1971	Women 1977	Men 1971	Men 1977
Agriculture and Natural Resources	-	1%	2%	3%
Biological Sciences	3	5	5	7
Business and Management	3	8	22	24
Education	36	24	10	8
Engineering	-	-	10	10
Fine and Applied Arts	5	6	3	3
Health Professions	5	11	1	2
Home Economics	3	4	-	-
Letters	12	6	6	4
Physical Sciences	1	1	4	4
Psychology	5	6	4	4
Public Affairs and Services	1	4	1	4
Social Sciences	16	11	21	14
Interdisciplinary Studies	1	4	2	4

Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Degree Awards to Women: An Update. Washington, DC, 1979.

Table 36

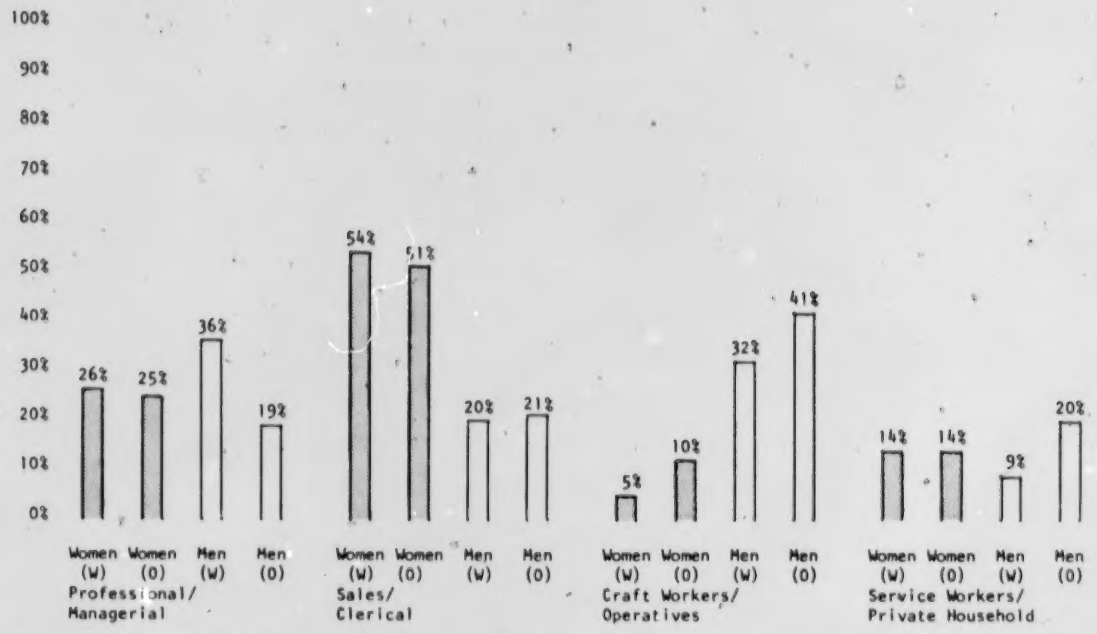
Percentage and Ranking of Leisure Time Activities by Sex

Activity	Percentage Females	Percentage Males	Rank Females	Rank Males
Take care of personal business (grocery shopping, banking, etc.)	84%	64%	1	1
Visit friends/relatives	70	56	2	2
Cook	60	27	3	9
Engage in favorite hobbies	60	52	4	3
Read for pleasure	60	41	5	5
Watch television	42	38	6	6
Attend cultural events	39	29	7	8
Read to improve self	37	32	8	7
Participate in sports	28	46	9	4
Travel	23	23	10	10
Participate in religious activities	21	17	11	12
Play cards	20	22	12	11
Attend classes for self improvement	15	10	13	13
Attend classes for fun	14	4	14	14

Source: Lewis Solmon and Nancy Ochsner. New Findings on the Effects of College. Washington, DC: American Association for Higher Education, 1978.

Table 37

Occupation of Employed Persons with 1-3 Years of College, 1977



Note: The figures have been recomputed and are subject to rounding errors.

W = White O = Black and other races

Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Digest of Education Statistics 1979. Washington, DC, 1979.

of those employed. In fact, one third of the total labor force was female that year.

A woman graduating 18 years later gets a different message as she looks through the College Placement Annual, 1977. No longer are jobs limited to one sex. The illustrations have also changed--women are 30% of those shown. Although this is still less than the actual representation in the labor force, it is an improvement over 1959.

An important outcome of a college education is the kind of employment obtainable. A distinction can be made between those who attend some college (1-3 years) and those who graduate (4 or more years). In fact, the largest differences in occupations for females and males are between those who have had some college and those who have graduated. With less than a college degree, women (of all races) are most likely to be employed in sales or clerical jobs, while men (Blacks and other minorities somewhat more likely than whites) are most likely to be employed as craftworkers and operatives. With a college degree, women and men (of all races) are most likely to be employed in professional and managerial positions. (Tables 38 & 39) Because the difference in type of occupation is more attributable to completing college than to sex or race, one way to increase the number or women and minorities in professional and managerial jobs is to reduce the differential attrition rates for these groups.

QUOTE:

> The employment of women has become an important factor in the economy of the U.S. We have progressed from a country in which teaching and nursing were considered about the only suitable careers for women to one in which nearly all fields are open to them.
>
> - Alice Norma Davis, Director Vocational Office, Smith College, 1959.

SALARIES. Remuneration is another aspect of employment. Recent information on salary offers to females and males in selected fields indicates that women continue to earn less than men. (Table 39) Women in biology and the social sciences, for example, are offered only 88% as much as men in those fields. On the other extreme, women in civil engineering are offered 104% as much as men in that field. The highest offers for females may be 4% greater than for men, but the lowest offers for females are 12% less than for men. The engineering field most consistently makes as high or higher offers to women, probably in an effort to recruit the few women in the field.

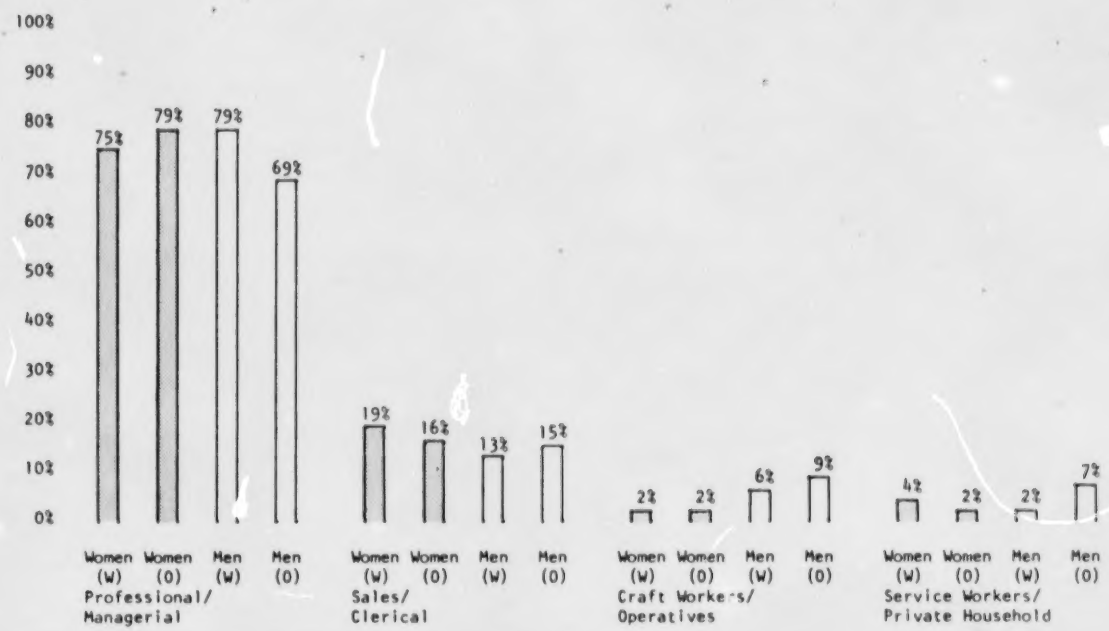
Because women are such a small percentage of engineers, their somewhat higher salaries do not significantly affect the amount of money female college graduates earn. Among college graduates (4 years of college) 25 years and over who have an income, 18% of the women and only 2% of the men earn less than $2,000 annually. (Table 40) This is reversed for those earning $25,000 or more annually. Twenty-three percent of the men and 2% of the women are in this group. The lower the annual income, the greater the percentage of women.

QUOTE:

> Career opportunites for women were never so yast as today. Employers are eagerly seeking qualified women for positions which formerly were considered a male stronghold. No longer is it legal to view positions as "men's jobs" or "women's jobs." There still is a long way to go, of course. But real progress has been made in the last several years--and the rate of improvement is accelerating. One of the chief hurdles remaining for women is opening the doors psychologically as well as legally. You have to raise your own aspirations.
>
> - College Placement Annual, 1977.

Table 38

Occupation of Employed Persons with 4 or More Years of College, 1977



Note: The figures have been recomputed and are subject to rounding errors.

W = White O = Black and other races

Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Digest of Education Statistics 1979. Washington, DC, 1979.

Table 39

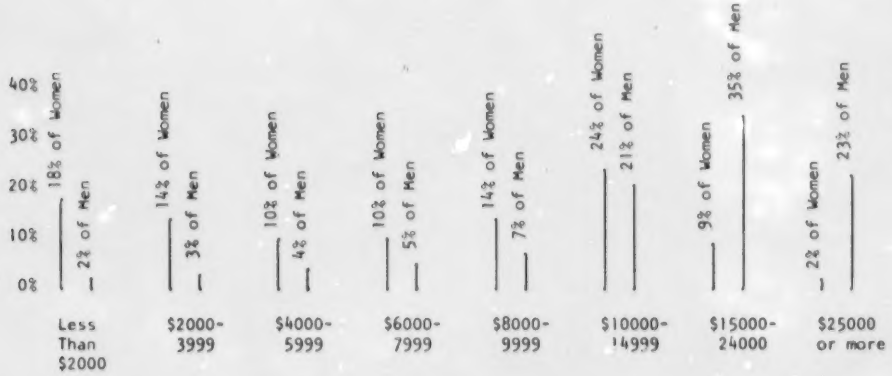
Average Monthly Salary Offers to Candidates
for the Bachelor's Degree, 1978

	Women	Men	Women's Salary as Percent of Men's
Biology	$ 964	$1095	88%
Social Sciences	843	961	88
Humanities	837	925	90
Health Professions	937	1045	90
Agriculture	896	978	92
Marketing and Distribution	931	977	95
Business, General	962	1004	96
Chemistry	1176	1199	98
Other Physical and Earth Sciences	1223	1243	98
Aeronautical Engineering	1345	1354	99
Computer Science	1256	1269	99
Mathematics	1177	1192	99
Accounting	1125	1124	100
Metallurgical Engineering	1421	1418	100
Chemical Engineering	1517	1512	100
Electrical Engineering	1381	1366	101
Petroleum Engineering	1662	1652	101
Technology Engineering	1302	1288	101
Industrial Engineering	1383	1361	102
Mechanical Engineering	1424	1402	102
Civil Engineering	1335	1280	104

Source: College Placement Council, Inc. A Study of Beginning Offers. Bethlehem, PA: College Placement Council, Inc., 1978.

Table 40

Annual Money Income of Persons 25 Years Old and Over Who
Have Completed 4 Years of College, 1976



Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Digest of Education Statistics 1979. Washington, DC, 1979

JOB SATISFACTION. Job satisfaction among college graduates is another issue. A recent study indicates that women generally are more satisfied with their jobs than are men (80% satisfied versus 75%). (Table 41) Specifically, women who majored in English, history, business, and education are more positive about their jobs than are men with the same majors (average of 81% satisfied versus 72%). Men who majored in humanities (other than English and history) and the social sciences, however, were more positive about their jobs than were women with the same majors (average of 80% of the men versus 74% of the women). Job satisfaction was highest among those who had majored in the hard sciences. This was also the only field in which equal percentages of women and men indicated satisfaction with their jobs (86%).

Table 41

General Job Satisfaction of College Graduates[1]

Major in College	Somewhat or Very Satisfied	
	Women	Men
English	75%	62%
History	76	72
Business	87	83
Education	85	71
Other Humanities	75	80
Social Sciences	73	79
Hard Sciences	86	86
All Majors	80	76

[1]Whites with a BA who are not currently in college. The number of minorities in the sample was too small for analysis.

Source: Lewis C. Solmon and Nancy Ochsner. New Findings on the Effects of College. Washington, DC: American Association for Higher Education, 1978.

Post-Baccalaureat Outcomes: Graduate Study

QUOTE:

> It is traditionally claimed that the rewards of higher education are based on merit. In light of women's superior academic performance, they should receive more financial support in the form of fellowships and grants, be more likely to finish their advanced training, and be likely to secure even better jobs once they leave the campus. It is an open secret that none of these things have actually happened.
>
> - Pamela Roby, "Institutional Barriers to Women Students in Higher Education," Academic Women on the Move, 1973.

Rather than seek employment after completing a bachelor's degree, some students pursue more education. In looking for similarities and differences among female and male graduate students, we can examine enrollment factors, such as grades, admissions, specialization, and attrition; financial concern factors, such as financial aid; and outcome factors, such as degrees awarded, employment salaries, and productivity. These factors are addressed in the following chapter.

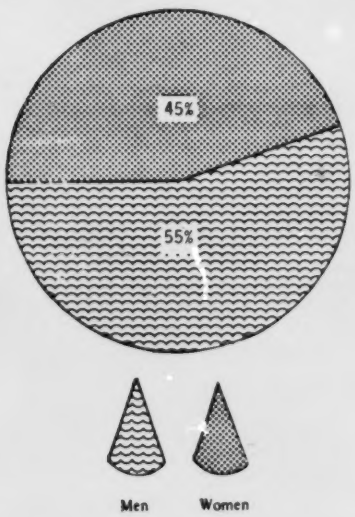
Post-Baccalaureate Concerns

Enrollment

As noted earlier, 13% of all female 22-24 year olds and 19% of all males in the same age category were enrolled in college in 1977. Because this indicator is age specific rather than degree-enrollment specific, some of these individuals are not graduate students. Even so, the 6 percentage point difference between females and males is a good estimate of their different enrollment rates, since these are the years most associated with graduate work.

A second estimate of graduate school enrollment[1] is based upon the percentage of women and men who continue their education beyond the baccalaureate. Data from 1977 indicate that, overall, women are more likely than men (74% versus 67%) to attend graduate school, based on the number that received a bachelor's degree in the Spring of 1977 and the number enrolled as first-year graduate students in the Fall of 1977.

Figure 1



Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Fall Enrollment in Higher Education, 1977. Washington, DC, 1977.

[1] Estimate is based on first-year, post-baccalaureate enrollment and excludes enrollment in first professional degrees.

Although a few individuals in that entering graduate class graduated prior to that spring, they are compensated for by the number who graduated in the spring but who are postponing graduate school. The percentage of students continuing their education is large because it includes both full- and part-time students. If we consider only full-time students, then only 23% of the women and 28% of the men continue their education beyond the bachelor's degree.

Although the percentage of women who continue beyond the bachelor's degree (full-time and part-time) is higher than the percentage of men, it should be remembered that there is a greater attrition for women than for men during the undergraduate years. Consequently, the women who get a bachelor's degree may be, on the average, better qualified (better grades, more motivated) for graduate school than men.

When we combine first-year and beyond first-year graduate students, men represent 55% of those enrolled. (Figure 1) In addition, men are somewhat more likely to be full-time students. Women who are full-time students comprise 15% of those enrolled in graduate study in 1977, while female, part-time students represent 30% of all graduate students. For men, the comparable figures are 25% (full-time) and 30% (part-time). This means that 55% of male graduate students are enrolled on a part-time basis, while 60% of female graduate students are part-timers.

The good news is that over time women are becoming a greater percentage of those enrolled for master's and doctor's degrees. Between 1972 and 1977, women increased from 38% of those enrolled to 45%. (Table 42)

Using data from the Fall of 1977, we can determine possible differences in the graduate enrollment of women and men by state. As Table 43 illustrates, while women, overall, are 45% of those enrolled, they are as many as 56% of those enrolled in West Virginia and as few as 29% of those enrolled in North Dakota. The map (Figure 2) shows a darkened area in those states where women are enrolled as graduate students in a higher percentage than the national average.

FACT:

Bachelor's Degree Graduates in 1976/77[1]

Women	46%	(424,004)
Men	54%	(495,545)

First-Year Graduate Students in Fall 1977[2]

Women	49%	(313,701)
Men	51%	(330,484)

Full-Time, First-Year Graduate Students in Fall 1977[2]

Women	42%	(99,188)
Men	58%	(137,698)

Source:

[1]Department of Health, Education, and Welfare, National Center for Education Statistics. Bachelor's Degrees Awarded to Women. Washington, DC, 1978.

[2]Department of Health, Education, and Welfare, National Center for Education Statistics. Fall Enrollment in Higher Education, 1977. Washington, DC, 1979.

Grades

Although little published data appears on national grade point averages (GPA) of female and male graduate students, there is data indicating that women have higher GPA's when entering graduate school. (Table 44) Twenty-five percent of the women versus 17% of the men completed their undergraduate degree with an A or A- GPA. About the same percentage point difference continues through the B+ average. Men are more likely than women to have a B or lower grade average (63% versus 49%).

Specialization

Enrollment data for women and men show considerable variation by program. Women are 91% of all first-year graduate students enrolled in home economics, 81% in library science, and 70% in health professions, but only 19% in business/management and physical sciences, 16% in law, and 5% in engineering. (Table 45) Because women comprise 48% of the total first-year enrollments, they are overrepresented in ten

Table 42

Total Enrollments for Masters and Ph.D. Degrees

	1972[1]	1974[1]	1976[2]	1977[3]
Women	38%	42%	44%	45%
Men	62	58	56	55

Source: [1]Department of Health, Education,and Welfare, National Center for Education Statistics. Students Enrolled for Advanced Degrees, Fall 1974. Washington, DC, 1976.

[2]Department of Health, Education, and Welfare, National Center for Education Statistics. Digest of Education Statistics 1977-78. Washington, DC, 1978

[3]Department of Health, Education, and Welfare, National Center for Education Statistics. Fall Enrollment in Higher Education, 1977. Washington, DC, 1979.

Table 43

Percentage of Graduate Students Who Are Women by State, 1977

State	% Women	Over and Under-Representation
West Virginia	56%	+11%
Kentucky	55	+10
South Carolina	55	+10
Vermont	54	+ 9
Alaska	53	+ 8
Georgia	53	+ 8
Alabama	51	+ 6
Arkansas	51	+ 6
Kansas	51	+ 6
Mississippi	51	+ 6
Louisiana	50	+ 5
Maryland	50	+ 5
Idaho	49	+ 4
North Carolina	49	+ 4
Nevada	49	+ 4
Indiana	48	+ 3
Michigan	48	+ 3
Nebraska	48	+ 3
Connecticut	47	+ 2
New York	47	+ 2
Tennessee	47	+ 2
Virginia	47	+ 2
Delaware	46	+ 1
Ohio	46	+ 1
Florida	45	=
Texas	45	=
Iowa	44	- 1
New Jersey	44	- 1
Oklahoma	44	- 1
Arizona	43	- 2
Maine	43	- 2
Minnesota	43	- 2
New Mexico	43	- 2
Oregon	43	- 2
Pennsylvania	43	- 2
Wisconsin	43	- 2
Colorado	42	- 3
Hawaii	42	- 3
Illinois	42	- 3
Massachusetts	42	- 3
Missouri	42	- 3
California	41	- 4
Rhode Island	41	- 4
District of Columbia	40	- 5
Montana	39	- 6
Washington	39	- 6
South Dakota	37	- 8
New Hampshire	35	-10
Utah	33	-12
Wyoming	31	-14
North Dakota	29	-16

Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Fall Enrollment in Higher Education, 1977. Washington, DC, 1977.

Figure 2

Table 44

Report Card for Graduate Students: Undergraduate GPA

Report Card for:	Women	Report Card for:	Men
A+/A	7%	A+/A	6%
A-	18	A-	11
B+	27	B+	19
B	19	B	18
B-	17	B-	20
C+	11	C+	21
C or below	2	C or below	4

Source: Saul D. Feldman. Escape from the Doll's House: Women in Graduate and Professional School Education. New York: McGraw-Hill, 1974.

fields (e.g., home economics: 91% - 48% = over-representation of 43%) and underrepresented in twelve fields (e.g., engineering: 5% - 48% = underrepresentation of 43%). Even though these data come from the most recent Digest of Education Statistics 1979 available, graduate enrollment is rapidly changing. Women are entering the male-dominated fields and men are enrolling in the female-dominated fields. But even with more recent figures, we would still find a large percentage point difference between the field with the highest percentage of women and the field with the lowest percentage of women. Only after years of

Table 45

Women as a Percentage of Enrollment in Master's and Doctor's Degree Programs

PROGRAM	FIRST-YEAR FEMALE GRADUATE STUDENTS	OVER AND UNDER-REPRESENTATION
Home Economics	91%	+43%
Library Science	81	+33
Health Professions	70	+22
Foreign Languages	69	+21
Education	68	+20
Letters	60	+12
Fine and Applied Arts	54	+ 6
Interdisciplinary Studies	51	+ 3
Area Studies	50	+ 2
Psychology	50	+ 2
Communications	48	=
Public Affairs & Services	45	- 3
Mathematics	36	-12
Social Sciences	36	-12
Biological Sciences	35	-13
Architecture	27	-21
Theology	26	-22
Agriculture	21	-27
Computer & Information Science	20	-28
Business and Management	19	-29
Physical Sciences	19	-29
Law	16	-32
Engineering	5	-43

Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Digest of Education Statistics, 1979. Washington, DC, 1979.

drastically changed enrollment patterns will we find similar percentages of women and men in each field.

Among those first-year students enrolled in first-professional degrees, women are 38% of those studying pharmacology and 34% of those in veterinary medicine, but are only 13% of those in dentistry, 12% of those in chiropractic degree programs, and 11% of those in podiatry. (Table 46) Since women represent only 24% of those enrolled in first-professional degree programs, they are overrepresented by 14 percentage points in pharmacology and underrepresented by 13 percentage points in podiatry.

For another aspect of the enrollment pattern, we can compare the profile of programs that women enroll in with men's program profiles. Forty-nine percent of all women in master's and doctor's programs (first-year enrollment data) are in education. The next highest percentage is 6% in the health professions and another 6% in business and management. Among men, 24% are in business and management, 21% are in education, 9% are in engineering, 7% are in the social sciences, and 6% are in public affairs and services. (Table 47) Women, clearly, do not have as diverse a profile as do men. A drastic change in the employment outlook for education potentially affects about half the women in graduate school but only about a fifth of the men.

The profiles for women and men in the first year of the first-professional degree are more similar than those in the first year of master's and doctor's programs. As shown in Table 48, 64% of the women are in law, 19% in medicine and 6% in the theological professions. This compares with 51% of the men in law, 18% in medicine, and 14% in theology.

Table 46

Women as a Percentage of Enrollment in First-Professional Degree Programs

PROGRAM	FIRST-YEAR FEMALES	OVER AND UNDER-REPRESENTATION
Pharmacy (D.Phar)	38%	+14
Veterinary medicine (D.V.M.)	34	+10
Law (LL.B. or J.D.)	28	+ 4
Medicine	24	=
Optometry (O.D.)	16	- 8
Osteopathic medicine (D.O.)	16	- 8
Dentistry (D.D.S. or D.M.D.)	13	-11
Chiropractic degree (D.C. or D.C.M.)	12	-12
Podiatry or podiatric medicine (Pod.D., D.P. or D.P.M.)	11	-13

Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Digest of Education Statistics, 1979. Washington, DC, 1979

Table 47

Percentage of Enrollment in Master's and Doctor's Degree Programs by Sex

PROGRAM	% WOMEN	% MEN
Education	49%	21%
Health Professions	6	2
Business & Management	6	24
Letters	5	3
Public Affairs & Services	5	6
Interdisciplinary Studies	4	3
Social Sciences	4	7
Library Science	3	1
Fine and Applied Arts	3	2
Psychology	3	3
Home Economics	2	-
Biological Sciences	2	4
Foreign Language	1	1
Communications	1	1
Mathematics	1	2
Architecture	1	1
Theology	1	2
Agriculture	1	1
Physical Sciences	1	4
Engineering	1	9
Area Studies	-	-
Computer & Information Science	-	2
Law	-	1
N =	297,372	326,136

Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Digest of Education Statistics, 1979. Washington, DC, 1979.

Table 48

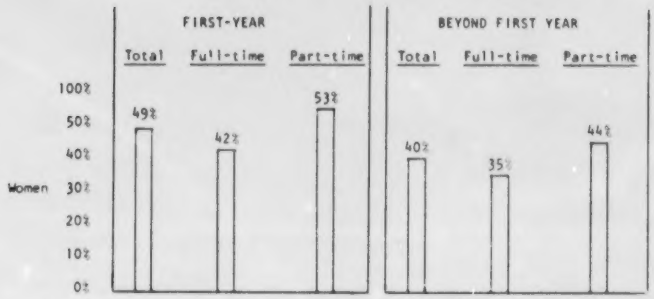
Percentage of Enrollment in First-Professional Degree Programs by Sex

PROGRAM	WOMEN	MEN
Law (LL.B. or J.D.)	64%	51%
Medicine	19	18
Theological professions (B.D., M.Div., Rabbi)	6	14
Dentistry (D.D.S. or D.M.D.	4	8
Veterinary medicine (D.V.M.)	3	2
Optometry (O.D.)	1	1
Osteopathic medicine (D.O.)	1	1
Pharmacy (D.Phar.)	1	1
Chiropractic degree (D.C. or D.C.M.)	1	2
Podiatry or podiatric medicine (Pod.D., D.P. or D.P.M.)	-	1
N =	19,944	63,278

Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Digest of Education Statistics, 1979. Washington, DC, 1979.

Table 49

Women as a Percentage of Master's and Doctor's Graduate Enrollment



Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Fall Enrollment in Higher Education, 1977. Washington, DC, 1979.

QUOTE:

In 1976, about one quarter of the nation's law, medical and veterinary students were women, which was more than double the 1971 levels. Women also made up 12.2 percent of the dental students, up 10 percentage points from five years before.

- Title IX News, November 2, 1978 (reporting NCES data)

Attrition

Once in graduate school, we wonder if there are different attrition rates for women and men. Although we lack the data to follow a first-year class through to graduation, we can use a single year as an estimate of attrition. In 1977 women were 49% of those enrolled as students in master's and doctor's programs. However, they were only 40% of those enrolled beyond the first year. Assuming that women and men have a fairly consistent pattern, then women have a higher attrition rate than men. The nine percentage point difference (from 49% to 40%) is the same as an 18% decline. (Table 49)

Furthermore the attrition rate is more severe in certain fields of study. An analysis of 23 programs indicates it is worse in the male dominated fields of agriculture (-38%), mathematics (-36%), theology (-35%), and physical sciences (-32%). (Table 50) In only one field is there a decrease for men, resulting in an increase for women--in public affairs and services there is a 2% decline among men.

Table 50

Female Percentage Change in Master's and Doctor's Degree Enrollment by Program

PROGRAM	CHANGE AS % OF FIRST-YEAR	FIRST-YEAR	BEYOND FIRST-YEAR	% POINT CHANGE
Agriculture	-38%	21%	13%	- 8
Mathematics	-36	36	23	-13
Theology	-35	26	17	- 9
Physical Sciences	-32	19	13	- 6
Health Professions	-23	70	54	-16
Computer & Information Science	-20	20	16	- 4
Letters	-18	60	49	-11
Education	-15	68	58	-10
Biological Sciences	-14	35	30	- 5
Foreign Languages	-12	69	61	- 8
Communications	-12	48	42	- 6
Law	-12	16	14	- 2
Social Sciences	-11	36	32	- 4
Interdisciplinary Studies	-10	51	46	- 5
Area Studies	-10	50	45	- 5
Psychology	-10	50	45	- 5
Business and Management	-10	19	17	- 2
Home Economics	- 7	91	85	- 6
Fine and Applied Arts	- 7	54	50	- 4
Library Science	- 6	81	76	- 5
Architecture	0	27	27	0
Engineering	0	5	5	0
Public Affairs & Services	+ 2	45	46	+ 1

Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Digest of Education Statistics, 1979. Washington, DC, 1979

Women are a smaller percentage of those enrolled for first-professional degrees. Their attrition rate also appears smaller, only 4 percentage points. (Table 51) But, this is a 17% decline, similar to the 18% decline among master's and doctor's degree students.

When we look at attrition by program, we find large differences. Female enrollment declines by 54% between the first year and later years in podiatric medicine. On the other hand, female enrollment declines by only 5% in pharmacology. (Table 52)

Attitudes

Female attrition in graduate school enrollment is probably attributable to numerous factors, including childhood socialization, role models in education, self concept, and attitudes of students and of faculty. Saul Feldman, in his classic study of graduate students, examined some of these attitudes and found several differences between females and males. He asked graduate students from 45 fields if female students were as dedicated as male students. (Table 53) A higher percentage of the male students than the female students thought females were less dedicated (25% versus 16%). When faculty were asked the same question, male faculty, like the male graduate students, were more likely to say that females were less dedicated (24% versus 11%). Finally, Feldman asked graduate students their attitudes about faculty treatment of students. More females than males agreed that faculty did not take female students seriously (28% versus 19%).

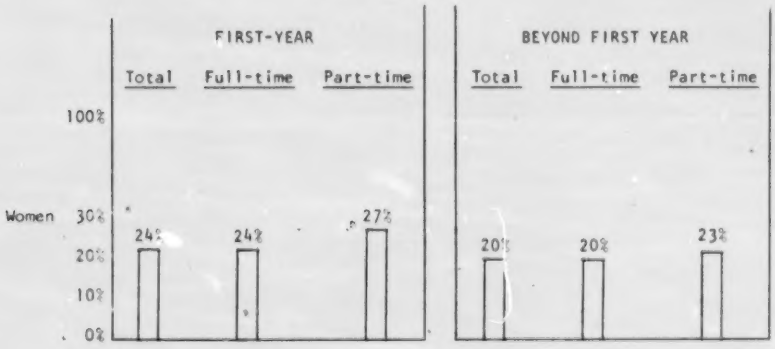
Since Feldman also asked the students to rate those 45 fields as to their masculinity or feminity, we can look at the responses of females and males by the stereotyped imagery of the field--masculine, neutral, or feminine. For those fields with a higher percentage of female graduate students (feminine), 1) female students were less likely to say that females were not dedicated ($-.35, p < .05$); 2) male students were less likely to say that the faculty does not take females seriously ($-.66, p < .001$); and 3) female students were also less likely to say that the faculty does not take females seriously ($-.60, p < .0001$).

A recent study[2] of 25,000 faculty members shows there has not been much change since Feldman's research. Findings included:

- "One in six faculty members agreed that 'female graduate students in my department are not as dedicated as the males'"

Table 51

Women as a Percentage of First-Professional Degree Enrollment



Source: Department of Health, Education and Welfare, National Center for Education Statistics. Digest of Education Statistics, 1979. Washington, DC, 1979.

[2] Survey conducted by Martin Trow at the University of California, Berkeley for the Carnegie Council on Policy Studies in Higher Education. The results of the research were reported in the Newsletter of the Project on the Status and Education of Women, March 1978.

- "Over one third of the faculty expressed reservations that women were not as likely as men to complete their graduate study and make important contributions to the field."

"If a significant proportion of college and university teachers have reservations about the likelihood of women graduate students finishing their degrees and doing important work," Martin Trow concluded, "then they are not as likely to give them the kind of attention and challenge they give men."

Attitudes can be conveyed in many ways--directly, by our words, or indirectly, by our actions. Since many women have been socialized to be sensitive to the feelings of others, they may be more affected by these "less favorable" attitudes than would be males.

Table 52

Female Percentage Change in First Professional Degree Enrollment by Program

PROGRAM	CHANGE AS % OF FIRST-YEAR ENROLLMENT	FIRST-YEAR ENROLLMENT	BEYOND FIRST-YEAR ENROLLMENT	% POINT CHANGE
Podiatry or Podiatric medicine (Pod.D., D.P. or D.P.M.)	-54%	11	5	-6
Osteopathic medicine (D.O.)	-31	16	11	-5
Veterinary medicine (D.V.M.)	-26	34	25	-9
Optometry (O.D.)	-25	16	12	-4
Dentistry (D.D.S. or D.M.D.)	-23	13	10	-3
Chiropractic degree (D.C. or D.C.M.)	-17	12	10	-2
Medicine	-12	24	21	-3
Law (LL.B. or J.D.)	-11	28	25	-3
Pharmacy (D.Phar.)	- 5	38	36	-2

Source:

Department of Health, Education, and Welfare, National Center for Education Statistics. Digest of Education Statistics, 1979. Washington, DC, 1979.

You'll be a great hostess someday!

Table 53

Female and Male Attitudes toward the Female's Dedication to Graduate Studies

Field Imagery	% Graduate Students Who Agree Females Are Not As Dedicated		% Faculty Who Agree Females Are Not As Dedicated		% Graduate Students Who Agree Faculty Does Not Take Female Students Seriously	
	Females	Males	Females	Males	Females	Males
Masculine	16%	24%	10%	25%	32%	23%
Neutral	20	28	13	26	39	21
Feminine	12	23	10	21	14	12
All Fields	16%	25%	11%	24%	28%	19%

Source:

Saul D. Feldman. Escape from the Doll's House: Women in Graduate and Professional School Education. New York: McGraw-Hill, 1974.

17

Financial Concerns

QUOTE:

> Fellowships are a psychological boost to a doctoral women's morale. It is a confirmation of her worth by faculty, it offers her a chance to think of herself as a colleague. It recognizes and affirms the hard work and effort she has expended, and gives impetus towards the completion of the degree, thereby lowering the attrition rate for female graduate students.
>
> - Susan Romer Kaplan, A Preliminary Study: The Admission, Retention, and Financing of Women Graduate Students, 1977.

Although several studies have been made of financial aid for graduate studies, we do not have a complete picture of the support and how it differs for males and females. We know something about specific awards (e.g., Woodrow Wilson Fellowships), something about the types of support (e.g., scholarship, research assistantship), and something about the sources of support (e.g., Federal agencies). But we do not have data on dollar value of stipends, on types of courses for male and female teaching assistantships, or on differential effects of types of financial assistance on women and men. Because women and men are not equally represented in the various fields, some differences in financial support may be caused by the kinds and amount of support generated by the programs. The sciences, for example, receive more scholarships and fellowships than do home economics and other female-oriented fields.

Additional differences may exist in hidden financial support. An engineering firm may pay some or all of the graduate level tuition costs for its employees. If women and men were equally distributed across types of occupations, this would not matter. But, since men are more likely to be engineers than are women and since women are more likely to be elementary school teachers than are men, some men have access to financial aid that some women do not have.

Although many of our concerns about financial aid are not well documented, we do have some evidence concerning the financial support for female and male graduate students. Lucy Sells, for instance, analyzed the affect of receiving the Woodrow Wilson Fellowship on the attrition rate of women, between 1958 and 1963.[3] Women receiving the fellowship for only one year, she found, had an attrition rate 20 percentage points greater than the men, while women receiving the fellowship for two years had an attrition rate that was only 11 percentage points greater than the men. While we might believe that fewer women than men applied for a second year of the fellowship, or that the women were not rated as highly as the men, Sells' analysis showed that faculty rated equally the women and men who applied. However, 66% of the men and only 45% of the women received the second year of the Woodrow Wilson Fellowship.

QUOTE:

> Since 1974, after a report done by Women's Equity Action League, which pointed out the low percentage of women receiving prestigious fellowships, the Guggenheim Foundation, for one, increased the number of women Guggenheim Scholars from 8% of the total granted to 15%.
>
> - Susan Romer Kaplan, A Preliminary Study: The Admission, Retention, and Financing of Women Graduate Students, 1977.

We also know something about the sources of support for women and men receiving their doctorates between 1950 and 1960. The men were more likely to have had aid from the government (e.g., National Science Foundation),

[3] Lucy Watson Sells, "Sex, Ethnic and Field Differences in Doctoral Outcomes" (unpublished Ph.D. dissertation, University of California, Berkeley, 1975).

while the women were more likely to have relied on their own savings or on support from family or spouse. (Table 54)

Table 54

Source of Stipend Support for Doctorates of 1950-1960

Source	Women	Men
Government	12%	22%
Institution	34	36
Own savings or support from family or spouse	50	42
Other	4	*
	100%	100%

* No Information

Source:

Helen S. Astin. "Career Profiles of Women Doctorates." Academic Women on the Move. New York: Russell Sage Foundation, 1973.

In a study of doctorates awarded in 1950, 1960, and 1968, Centra found that "women were slightly more likely than men to have received a fellowship or scholarship while men were somewhat more likely to have been teaching assistants. . . . Equal proportions of both sexes, about a third, were research assistants at some point in graduate school."[4] Across those three years women who received the doctorate were more likely to have received fellowships or scholarships than men. Since previous studies have shown that women enter graduate school with "exceptionally strong academic and intellectual credentials" and since studies have shown no evidence of women receiving a greater proportion of fellowships and scholarships, Centra feels that women who received financial assistance were more likely to complete their graduate study than were those who did not.

Recent data on full-time graduate students in doctoral programs continue to show some differences in the source of major financial support between women and men. Although about the same percentage of both sexes received Federal support, the sources within the government varied. Fourteen percent of the women and only 7% of the men received financial assistance from the Department of Health, Education, and Welfare. (Table 55) Men received more of their support from the Department of Defense and from the National Science Foundation. More women than men (35% versus 37%) indicated self-support.

Current evidence concerning financial aid helps us to see some of the patterns. Future studies need to fully document the similarities and differences in financial support for women and men as well as develop explanations for differential effects of financial assistance on women and men.

Table 55

Full-Time Doctoral Students
by Source of Major Support, 1977

Source	Women	Men
Federal, Total	22%	24%
Dept. of Defense	1	3
Dept. of HEW, Total	14	7
NIH	7	5
Other HEW	7	2
NSF	2	6
All Other Federal	5	8
Institutional Support, Total	37	39
Other Outside Support, Total	6	10
All Other U.S. Sources	4	6
Foreign Sources	2	4
Self-Support	35	27
N=	49,857	135,755

Source:

National Science Foundation. Technical Notes and Detailed Statistical Tables Graduate Science Education: Student Support and Postdoctorals Fall 1977. Washington, DC, 1977.

[4] J.A. Centra, Women, Men, and the Doctorate (Princeton, NJ, 1974).

Outcomes

Degrees Earned and Field of Specialization

MASTER'S DEGREES. Over the past 100 years, the percentage of master's degrees awarded to women has changed considerably. From 1879, when women received 1% of the masters, the percentage increased until it reached a temporary peak in 1929, when women were awarded 40% of the degrees. The percentage declined for the next two decades and then began to increase so that by 1969 women were again 40% of those earning masters. In 1978 women received 48% of the master's degrees. (Table 56)

- 62% of the Blacks are female;
- 48% of the Hispanics are female;
- 47% of the whites are female;
- 46% of the American Indian/Alaskan Natives are female; and
- 38% of the Asian or Pacific Islanders are female.[5]

FIELDS OF SPECIALIZATION FOR MASTER'S DEGREE RECIPIENTS. In 1977-78 women received as few as 2% of the masters in military science and as many as 92% of those in home economics. Women continue to receive a small number of the master's degrees in the traditionally male fields of engineering, law, physical

Table 56

Historical Summary of Master's Degrees Earned by Women, 1879-1978

Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Digest of Education Statistics, 1979. Washington, DC, 1979. Department of Health, Education, and Welfare, National Center for Education Statistics. Earned Degrees Conferred, 1977-78 -- Preliminary Summary. Washington, DC, 1979.

MASTER'S DEGREES AND ETHNICITY. Of the master's degrees awarded in 1975-76, 85% were awarded to whites, 7% to Blacks, 2% to Hispanics, 1% to Asian or Pacific Islanders, and less than 1% to American Indian/Alaskan Natives. Examining the percentage of females within each racial/ethnic group, we find that Black females received the highest percentage and Asian or Pacific Islander females the lowest. Among those earning a master's degree:

sciences, and business management. Conversely, in the traditionally female fields of library science, foreign languages, health professions, and education women earn a large percentage of the degrees. The percentages in 1977-78, when compared with 1970-71, showed increases in all but public affairs and services, library science, and home economics. These three fields showed minor decreases, 49% to 48%, 81% to 80%, and 94% to 92% respectively. (Table 57)

[5] Department of Health, Education, and Welfare, National Center for Education Statistics, The Condition of Education (Washington, DC, 1978).

Table 57

Percentage Female Among Master's Degree Recipients by Field

Field	% Female Among MA Recipients 1977-78	% Female Among MA Recipients 1970-71
Military Sciences	2%	-
Engineering	5	1%
Law	15	5
Physical Sciences	17	13
Business & Management	17	4
Computer & Information Sciences	19	10
Agriculture & Natural Resources	19	6
Architecture	26	14
Theology	30	24
Social Sciences	33	28
Mathematics	34	29
Biological Sciences	35	34
Interdisciplinary Studies	37	35
Public Affairs & Services	48	49
Area Studies	48	39
Communication	49	35
Fine & Applied Arts	52	47
Psychology	52	37
Letters	62	58
Education	68	56
Health Professions	70	55
Foreign Languages	71	65
Library Science	80	81
Home Economics	92	94
TOTAL PERCENTAGE FEMALE	48	40

- Less than 1%

Source:

Department of Health, Education, and Welfare, National Center for Education Statistics. Earned Degrees Conferred, 1977-78 -- Preliminary Summary. Washington, DC, 1979. Department of Health, Education, and Welfare, National Center for Education Statistics. Master's Degree Awards to Women. Washington, DC, 1978.

Although women were 48% of those receiving a master's degree in 1977-78, their actual percentage in each field varied considerably. Their over and underrepresentation is determined by subtracting the overall percentage of women receiving a masters from the percentage of women in each field. Since women are 48% of those who earned a masters and 5% of those who earned the degree in engineering, we can say that women are underrepresented by 43 percentage points. Using this calculation, we note that women are most underrepresented in the fields of military science (-46%), engineering (-43%), law (-33%), physical sciences (-31%), and business and management (-31%). (Table 58) Women are most overrepresented in home economics (+44%), library science (+32%), foreign languages (+23%), health professions (+22%), and education (+20%).

Because the overall percentage of females receiving master's degrees increased by eight percentage points between 1970-71 and 1977-78, we can use the over and underrepresentation as a way of comparing change over the seven years. In 1970-71, for example, women were underrepresented in engineering by 39 percentage points. That had grown to an underrepresentation of 43 percentage points seven years later. In other words, although women received a larger percentage of the engineering master's degrees in 1977-78 than in 1970-71, the increase did not keep up with the overall increase of women receiving master's degrees. Other fields where women were more underrepresented in 1977-78 than in 1970-71 include, military science, physical sciences, theology, social sciences, mathematics, biological sciences, and interdisciplinary studies. They declined in overrepresentation in home economics and library science, but were more overrepresented in education and the health professions.

Table 58

Over and Underrepresentation of Women Among Master's Degree Recipients by Field

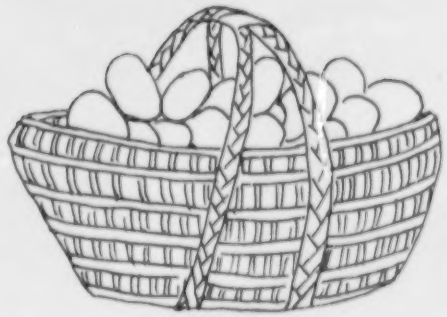
Field	Over or Under-representation 1977-78	Over or Under-representation 1970-71
Military Sciences	-46%	-40%
Engineering	-43	-39
Law	-33	-35
Physical Sciences	-31	-27
Business & Management	-31	-36
Computer & Information Sciences	-29	-30
Agriculture & Natural Resources	-29	-34
Architecture	-22	-26
Theology	-18	-16
Social Sciences	-15	-12
Mathematics	-14	-11
Biological Sciences	-13	- 6
Interdisciplinary Studies	-11	- 5
Public Affairs & Services	=	+ 9
Area Studies	=	- 1
Communications	+ 1	- 5
Fine & Applied Arts	+ 4	+ 7
Psychology	+ 4	- 3
Letters	+14	+18
Education	+20	+16
Health Professions	+22	+15
Foreign Languages	+23	+25
Library Science	+32	+41
Home Economics	+44	+54
OVERALL PERCENTAGE OF MA'S	48	40

Source:

Department of Health, Education, and Welfare, National Center for Education Statistics. Earned Degrees Conferred, 1977-78 -- Preliminary Summary. Washington, DC, 1979. Department of Health, Education, and Welfare, National Center for Education Statistics. Master's Degree Awards to Women. Washington, DC, 1978.

When we look at the fields women and men get degrees in, it appears that women put more than half of their eggs in one basket. Fifty-three percent of the women receiving master's degrees are awarded a degree in education. (Table 59) They do not earn 10% of the degrees in any other field. Men, on the other hand, are somewhat better distributed across the fields. Twenty-five percent earn a masters in business and management, 24% in education, and 10% in engineering. If the job market changes in the field of education, a large percentage of women receiving a master's degree will be affected. Men, however, seem to have a more balanced "portfolio."

Over the past thirty years, the percentage of women receiving a master's degree in education has increased from 40% to 68%.



(Table 60) It has not been a steady increase. The percentage temporarily peaked in 1955 at 47%. It began to decrease until 1963, when it went up to 46%. Then from 1963 until 1978 there have been regular increases. Education, it would seem, is becoming even more of a feminine field.

Table 59

Fields of Master's Degrees by Sex

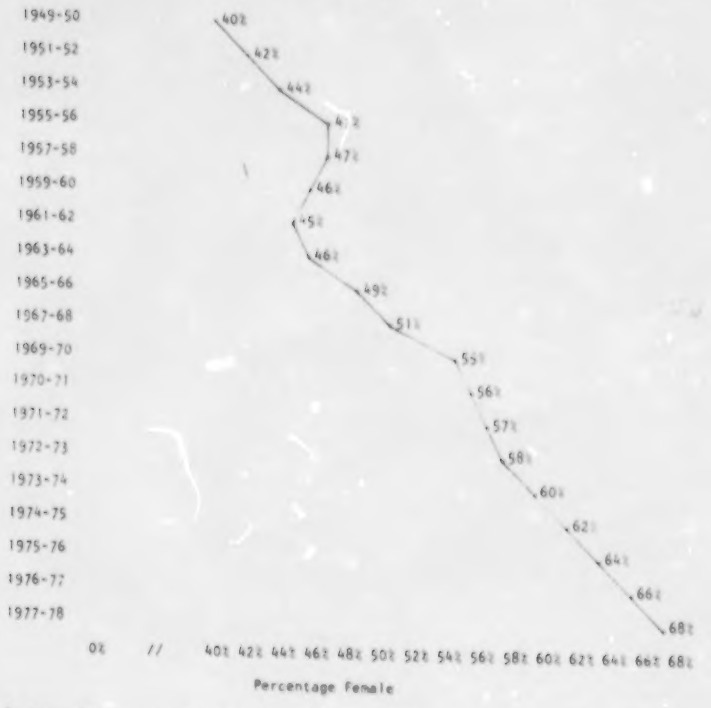
Field	1977-78 Female[1]	1977-78 Male[1]	1970-71 Female	1970-71 Male
Education	53%	24%	54%	28%
Health Professions	7	3	4	3
Public Affairs & Services	6	6	4	3
Business & Management	5	25	1	18
Letters	4	2	8	4
Library Science	4	1	6	-
Fine & Applied Arts	3	3	3	2
Psychology	3	2	2	2
Social Sciences	3	6	5	8
Biological Sciences	2	3	2	3
Home Economics	2	-	2	-
Agriculture & Natural Resources	1	2	-	2
Architecture & Environmental Design	1	1	-	2
Communication	1	1	-	-
Engineering	1	10	-	12
Foreign Languages	1	-	3	1
Mathematics	1	1	2	3
Physical Sciences	1	3	-	4
Theology	1	1	-	2
Interdisciplinary Studies	1	2	-	1
Computer & Information Sciences	1	2	-	1
Law	-	1	-	-
Area Studies	-	-	-	-
	100%	100%	100%	100%
N =	(151,108)	(161,664)	(92,594)	(138,892)

1 Military Sciences master's degree recipients excluded
- Less than 1%

Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Earned Degrees Conferred, 1977-78 -- Preliminary Summary. Washington, DC, 1979. Department of Health, Education, and Welfare, National Center for Education Statistics. Master's Degree Awards to Women. Washington, DC, 1978.

Table 60

Percentage Female Among Master's Degree Recipients in Education, 1949-50 to 1977-78



Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Digest of Education Statistice 1977-1978. Washington, DC, 1978. Department of Health, Education, and Welfare, National Center for Education Statistics. Digest of Education Statistics, 1979. Washington, DC, 1979. Department of Health, Education, and Welfare, National Center for Education Statistics. Earned Degrees Conferred, 1977-78 -- Preliminary Summary. Washington, DC, 1979.

HISTORICAL OVERVIEW OF WOMEN AND THE DOCTORATE. Over the past 100 years, the percentage of doctor's degrees awarded to women has grown from 6% to 26%. (Table 61) In 1879 women received 6% of the doctorates. Although this declined to 1% in 1889, it increased to 15% by 1919, remaining steady over the next ten years. Then it began a decline that lasted through the next two decades. After 1959 the percentage of women began to increase so that by 1969 women were 13% of those earning the doctorate. In the last 10 year period, the percentage of women increased rapidly although they still receive only about a quarter of the degrees.

DOCTOR'S DEGREES EARNED AND ETHNICITY. Of the Ph.D's and Ed.D's awarded in 1975-76, whites received 81%, Blacks 4%, Asian or Pacific Islanders 2%, Hispanics 1%, and American Indian/Alaskan Natives less than 1%. There is a significant point spread between the racial/ethnic group with the highest percentage of women who earned the doctorate and the lowest:

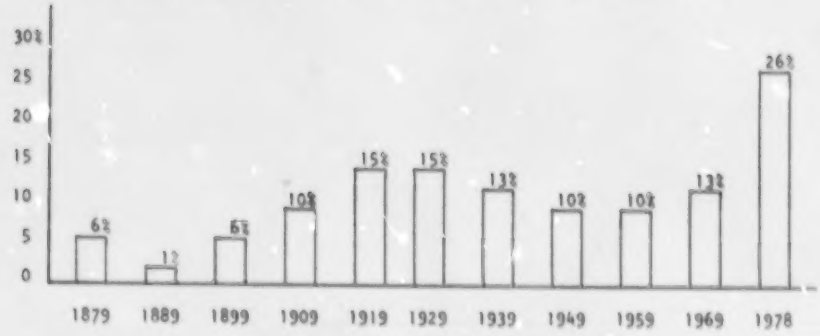
- 36% of the Blacks are female;
- 28% of the Hispanics are female;
- 24% of the whites are female;
- 18% of the Asian or Pacific Islanders are female; and
- 17% of the American Indian/Alaskan Natives are female.[6]

Examining the fields in which the doctorate is earned reveals additional differences. The small number of women in certain racial/ethnic groups prevents us from comparing all fields with both sexes of each group. We

[6]Department of Health, Education, and Welfare, National Center for Education Statistics, The Condition of Education (Washington, DC, 1978).

Table 61

Historical Summary of Doctor's Degrees Earned, 1879-1978



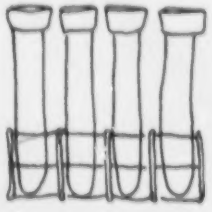
Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Digest of Education Statistics, 1979. Washington, DC, 1979. Department of Health, Education and Welfare, National Center for Education Statistics. Earned Degrees Conferred, 1977-78 -- Preliminary Summary. Washington, DC, 1979.

can, however, look at a few selected fields where there are adequate numbers of both males and females in each racial/ethnic group. Approximately 34% of women receiving a doctorate between 1973 and 1976 earned it in education. This compares with 22% of the men. These percentages vary considerably by racial/ethnic group:

- 66% of Black females earning a doctorate received it in education compared with 58% of Black males;
- 48% of Puerto Rican females earning a doctorate received it in education compared with 23% of Puerto Rican males;
- 44% of Chicanas earning a doctorate received it in education compared with 39% of Chicanos;
- 37% of American Indian/Alaskan Native females earning a doctorate received it in education compared with 33% of American Indian/Alaskan Native males;
- 32% of white females earning a doctorate received it in education compared with 22% of white males; and
- 27% of Asian females earning a doctorate received it in education compared with 14% of Asian males.[7]

In a second example, taken from the same source, we find that 12% of the females and 14% of the males earned a doctorate in the biosciences between 1973 and 1976. Although these percentages are similar, a considerable difference exists when we look at the combination of sex and racial/ethnic group:

- 20% of the Asian females earning a doctorate received it in biosciences compared with 29% of the Asian males;
- 13% of the white females earning a doctorate received it in biosciences compared with 15% of the white males;



- 11% of the American Indian females earning a doctorate received it in biosciences compared with 13% of the American Indian males; and
- 6% of the Black, Chicana, and Puerto Rican females earning a doctorate received it in biosciences compared with 7%, 12%, and 13% respectively of the Black, Chicano, and Puerto Rican males.

[7] D.H. Gilford and J. Snyder, Women and Minority Ph.D.'s in the 1970's: A Data Book (Washington, DC, 1977).

FIELDS OF SPECIALIZATION FOR DOCTOR'S DEGREE RECIPIENTS. In 1977-78 women received as few as 2% of the Ph.D. degrees in engineering and as many as 71% of those in home economics. (Table 62) Women were awarded less than 10% of the degrees in the traditionally male fields of engineering (2%), theology (5%), agriculture (6%), computer and information sciences (8%), and business and management (8%). Conversely, they received 71% of the doctorates in home economics, 55% in foreign languages, and 39% in letters and in education.

In all fields, a higher percentage of the doctorates were awarded to women in 1977-78 than in 1970-71. But, because the overall percentage awarded to women increased from 14% to 26% over the seven years, women end up even more underrepresented in some fields than they were previously. For example, women were underrepresented by 14 percentage points in engineering in 1970-71. By 1977-78 this had increased to 24 percentage points. (Table 63)

When we examine the distribution of women and men across the fields, we find that in 1977-78 35% of the women and 20% of the men received a doctorate in education. (Table 64) Education is the one field in which the largest percentage of both females and males earn a doctor's degree.[8] Among women in 1977-78, 11% obtained a Ph.D. in psychology, 10% in letters, and 10% in social sciences. The list differed somewhat for

Table 62

Percentage Female Among Doctor's Degree Recipients by Field

Field	% Female Among Ph.D. Recipients 1977-78	% Female Among Ph.D. Recipients 1970-71
Engineering	2%	-
Theology	5	2%
Agriculture & Natural Resources	6	3
Computer & Information Sciences	8	2
Business & Management	8	3
Physical Sciences	10	6
Law	13	0
Mathematics	15	8
Architecture	22	8
Social Sciences	24	14
Biological Sciences	24	16
Communication	28	13
Area Studies	31	17
Interdisciplinary Studies	32	15
Public Affairs & Services	32	24
Library Science	36	28
Fine & Applied Arts	37	22
Psychology	37	24
Health Professions	38	16
Education	39	21
Letters	39	24
Foreign Languages	55	38
Home Economics	71	61
TOTAL PERCENTAGE FEMALE	26	14

- Less than 1%

Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Earned Degrees Conferred, 1977-78 -- Preliminary Summary. Washington, DC, 1979. Department of Health, Education, and Welfare, National Center for Education Statistics. Doctoral Degree Awards to Women. Washington, DC, 1978.

[8] The education subfields of specialization show fairly even distribution. The exception is education administration. In 1977-78, 1432 degrees were conferred, but only 359 or 39% went to women. From pre-publication data, Department of Education, National Center for Education Statistics, Digest of Education Statistics 1980 (Washington, DC, in press).

Table 63

Over and Underrepresentation of Women Among Doctor's Degree Recipients by Field

Field	Over or Under-representation 1977-78	Over or Under-representation 1970-71
Engineering	-24%	-14%
Theology	-21	-12
Agriculture & Natural Resources	-20	-11
Business & Management	-18	-11
Computer & Information Sciences	-18	-12
Physical Sciences	-16	- 8
Law	-13	-14
Mathematics	-11	- 6
Architecture & Environmental Design	- 4	- 6
Social Sciences	- 2	=
Biological Sciences	- 2	+ 2
Communication	+ 2	- 1
Area Studies	+ 5	+ 3
Public Affairs & Services	+ 5	+10
Library Science	+10	+14
Fine & Applied Arts	+11	+ 8
Psychology	+11	+10
Health Professions	+12	+ 2
Letters	+13	+10
Education	+13	+ 7
Foreign Languages	+19	+24
Home Economics	+45	+47
OVERALL PERCENTAGE OF PH.D'S	26	14

Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Earned Degrees Conferred, 1977-78 -- Preliminary Summary. Washington, DC, 1979. Department of Health, Education, and Welfare, National Center for Education Statistics. Doctoral Degree Awards to Women. Washington, DC, 1978.

men. Twelve percent received a doctorate in physical sciences, and 10% in engineering. There are not many differences between 1970-71 and 1977-78. Fields showing an increase or decrease of at least 4 percentage points for women include education (+5%) and biological sciences (-4%). For men, the greatest change was in physical sciences (+8%) and theology (+4%).

Looking more closely at the change in the field of education, in 1949-50 women received 16% of the doctorates. (Table 65) Slowly the percentage increased until it reached 21% in 1957-58. Then it began a small decline and did not reach 21% again until 1970-71. Since that time it has increased rapidly to the 1977-78 level of 39%.

FIELDS OF SPECIALIZATION FOR FIRST-PROFESSIONAL DEGREES. A first-professional degree, in the definition of the National Center for Education Statistics, is one that "signifies completion of the academic requirements for beginning practice in a given profession."[9] Between 1970-71 and 1977-78 the percentage of women recipients has grown from 6% to 22%. (Table 66) The fields with the largest percentage of women are pharmacology (30%),

[9]Department of Health, Education, and Welfare, National Center for Education Statistics, First Professional Degree Awards to Women (Washington, DC, 1978).

law (26%), veterinary medicine (24%), and medicine (22%). Because pharmacology was not large enough to be included as a separate first-professional field in 1970-71, we cannot make a comparison across the years. Calculating the over and underrepresentation of women in other fields, however, we find women have fallen farther behind in podiatry, chiropractic medicine, dentistry, theological professions, osteopathic medicine, and optometry over the seven year period. (Table 67) Although women are receiving larger percentages of the first-professional degrees, they are concentrating in a very few fields.

Women are concentrated primarily in two fields--law and medicine. Sixty-two percent received an LL.B. or J.D. and an additional 22% received an M.D. (Table 68) Men are somewhat more broadly distributed. Forty-nine percent earned a law degree, 22% an M.D. degree, 11% a theological degree, and 9% a degree in dentistry. In 1970-71 a somewhat smaller percentage of women earned a law degree and a correspondingly larger percentage earned the M.D., while few changes occurred in the distribution of men.

An historical view of the first-professional fields of medicine and law, from 1949-50 to

Table 64

Fields of Doctor's Degrees by Sex

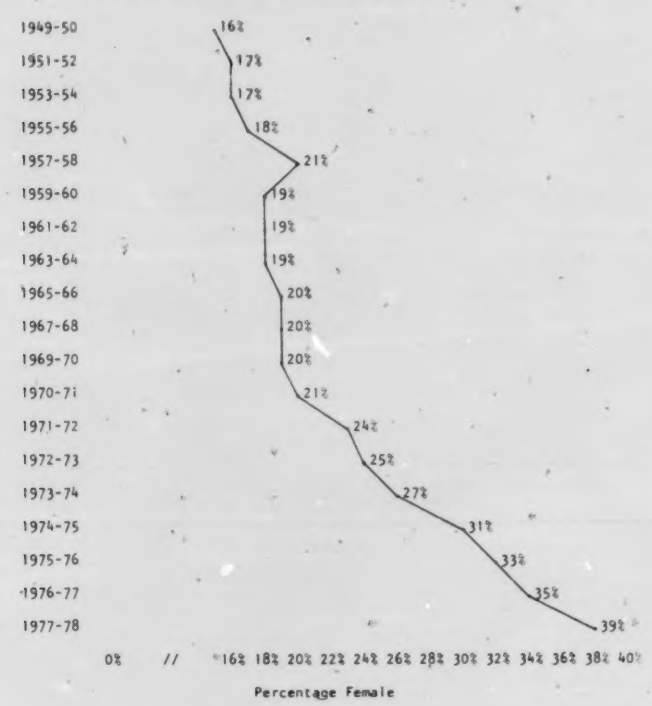
Field	1977-78 Female	1977-78 Male	1970-71 Female	1970-71 Male
Education	35%	20%	30%	18%
Psychology	11	7	9	5
Letters	10	5	12	7
Social Sciences	10	11	11	11
Biological Sciences	9	11	13	11
Foreign Languages	4	1	6	2
Physical Sciences	4	12	2	4
Fine & Applied Arts	3	2	3	2
Health Professions	3	2	2	1
Home Economics	2	-	2	-
Public Affairs & Services	2	1	-	-
Agriculture & Natural Resources	1	4	-	4
Area Studies	1	-	-	-
Business & Management	1	3	-	-
Communication	1	1	-	-
Engineering	1	10	-	13
Mathematics	1	3	2	4
Theology	1	5	-	1
Interdisciplinary Studies	1	1	-	-
Architecture & Environmental Design	-	-	-	-
Computer & Information Sciences	-	1	-	-
Law	1	1	0	-
Library Science	1	1	-	-
	100%	100%	100%	100%
N =	(8,487)	(23,669)	(4,496)	(27,617)

- Less than 1

Source: Department of Health, Education, and Welfare, National Center for Educational Statistics. Earned Degrees Conferred, 1977-78 -- Preliminary Summary. Washington, DC, 1979. Department of Health, Education, and Welfare, National Center for Education Statistics. Doctoral Degree Awards to Women. Washington, DC, 1978.

Table 65

Percentage Female Among Doctor's Degree Recipients in Education, 1949-50 to 1977-78



Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Digest of Education Statistics, 1977-1978. Washington, DC, 1978. Department of Health, Education, and Welfare, National Center for Education Statistics. Digest of Education Statistics, 1979. Washington, DC, 1979. Department of Health, Education, and Welfare, National Center for Education Statistics. Earned Degrees Conferred, 1977-78 -- Preliminary Summary. Washington, DC, 1979.

1977-78, shows a fairly similar pattern for these two fields. (Table 69) Women received 10% of the M.D. degrees in 1949-50. That percentage dropped sharply and stayed around 5% until 1962-63, when a slow ascent began. By 1977-78 women received 22% of the M.D. degrees conferred. Comparable data exists for law beginning in 1954-55. In that year women received only 4% of the LL.B. or J.D. degrees awarded. The percentage hovered around 3% until 1965-66, when it moved to 4% where it stayed until 1969-70. The rise began in that year and continued to 1977-78, when women received 26% of the law degrees conferred.

Employment

QUOTE:

I'm looking toward the day when all barriers get broken so that there's no longer a first female anything and we can get on with our work.

- Lynn Sherr,
First female TV anchor

Table 66

Percentage Female Among First-Professional Degree Recipients by Field

Field	% Female Among Recipients 1977-78	% Female Among Recipients 1970-71
Pharmacology (D.Phar.)	30%	*
Law (LL.B. or J.D.)	26	7%
Veterinary Medicine (D.V.M.)	24	8
Medicine	22	9
Optometry (O.D.)	13	2
Osteopathic Medicine (D.O.)	12	2
Dentistry (D.D.S. or D.M.D.)	11	1
Theological Professions (B.D., M.Div., Rabbi)	11	2
Chiropractic (D.C. or D.C.M.)	10	*
Podiatry (Pod.D. or D.P.) or Podiatric Medicine (D.P.M.)	5	2
Other	#	21
TOTAL PERCENTAGE FEMALE	22	6

* Not included as first-professional degree in 1970-71

\# Not included as a category in 1977-78

Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Earned Degrees Conferred, 1977-78 -- Preliminary Summary. Washington, DC, 1979. Department of Health, Education, and Welfare, National Center for Education Statistics. First Professional Degree Awards to Women. Washington, DC, 1978.

Table 67

Over and Underrepresentation of Women Among First-Professional Degree Recipients by Field

Field	Over or Under-representation 1977-78	Over or Under-representation 1970-71
Podiatry (Pod.D. or D.P.) or Podiatric Medicine (D.P.M.)	-17%	- 4
Chiropractic (D.C. or D.C.M.)	-12	*
Dentistry (D.D.S. or D.M.D.)	-11	- 5
Theological Professions (B.D., M.Div., Rabbi)	-11	- 4
Osteopathic Medicine (D.O.)	-10	- 4
Optometry (O.D.)	- 9	- 4
Medicine	=	+ 3
Veterinary Medicine (D.V.M.)	+ 2	+ 2
Law (LL.B. or J.D.)	+ 4	+ 1
Pharmacy (D.Phar.)	+ 8	*
OVERALL PERCENTAGE FEMALE	22	6

* Not included as first professional degree in 1970-71

Sources: Department of Health, Education, and Welfare, National Center for Education Statistics. First Professional Degree Awards to Women. Washington, DC, 1978. Department of Health, Education, and Welfare, National Center for Education Statistics. Earned Degrees Conferred, 1977-78 -- Preliminary Summary. Washington, DC, 1979.

Table 68

Fields of First-Professional Degrees by Sex

Field	1977-78 Female	1977-78 Male	1970-71 Female	1970-71 Male
Law (LL.B. or J.D.)	62%	49%	52%	46%
Medicine	22	22	33	23
Theological Professions (B.D., M.Div., Rabbi)	5	11	5	14
Dentistry (D.D.S. or D.M.D.)	4	9	2	10
Veterinary Medicine (D.V.M.)	3	2	4	3
Optometry (O.D.)	1	2	1	1
Osteopathic Medicine (D.O.)	1	2	-	1
Pharmacy (D.Phar.)	1	1	*	*
Chiropractic (D.C. or D.C.M.)	1	3	*	*
Podiatry (Pod.D., D.P.) or Podiatric Medicine (D.P.M.)	-	1	-	1
Other	#	#	3	1

\- Less than 1

* Not included as first professional degree in 1970-71

\# "Other" category not shown in 1977-78

Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Earned Degrees Conferred, 1977-78 -- Preliminary Summery. Washington, DC, 1979. Department of Health, Education, and Welfare, National Center for Education Statistics. First Professional Degree Awards to Women. Washington, DC, 1978.

Numerous studies have been done on the employment patterns of those who receive master's, doctor's, and first-professional degrees. Among the well known studies are several by Lindsey R. Harmon,[10] Helen Astin's Woman Doctorate in America, and Saul Feldman's Doll's House: A Study of Graduate Women. Although these studies focus primarily on the doctorate and are now somewhat out-of-date, we urge our readers to consult them. Our attention here will be directed at several aspects of employment and its corollary unemployment. Much of the data concerns doctorate recipients, rather than master's or first-professional degree recipients. Since approximately 75% of those receiving a doctor's degree spend at least part of their careers in academic settings, we have reserved most of the information for volume three of this series, A Statistical Report on the Professional Concerns of Women in Post-Secondary Education.

Data from 1960, 1965, and 1970 indicate that both women and men Ph.D.'s are most likely to be hired by an educational institution. Furthermore, a higher percentage of women than of men are employed by educational institutions. (Table 70)

More recent data on the employment of doctorate recipients show that the pattern among types of employers has remained constant. Educational institutions are the largest employers of both women and men. (Table 71) Industry/business is the second

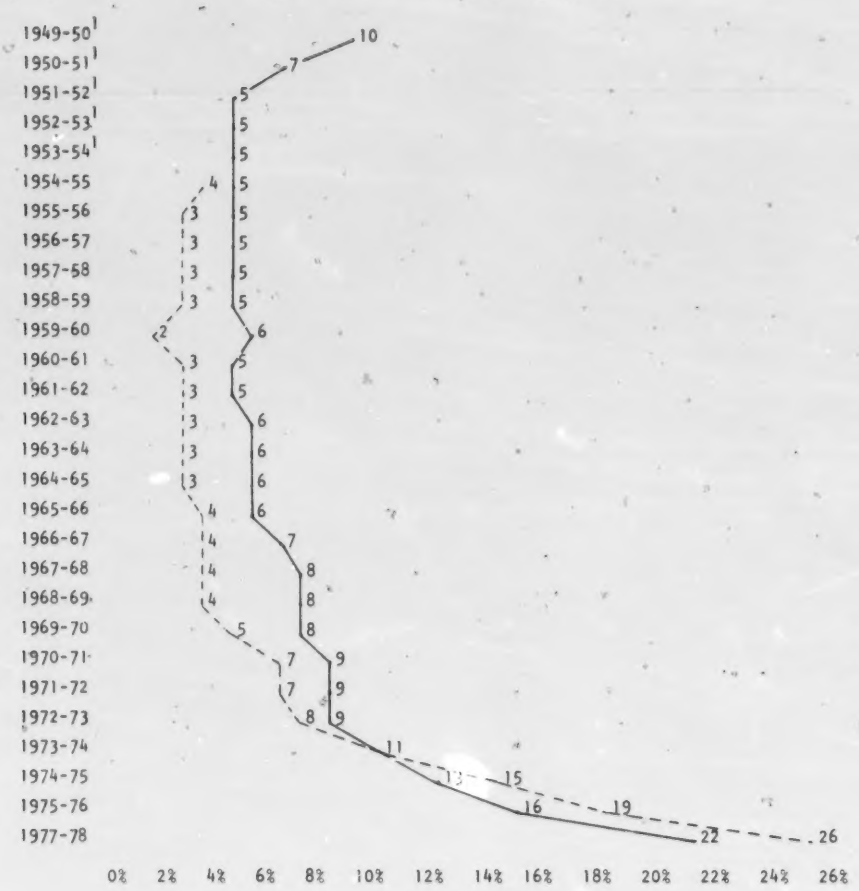
[10] Lindsey R. Harmon, High School Ability Patterns, A Backward Look from the Doctorate, Scientific Manpower Report #6 (Washington, DC, 1965). Lindsey R. Harmon, Profiles of Ph.D.'s in the Sciences (Washington, DC, 1965.

largest employer of males but the "all other" and "unknown" categories are second highest for the females. Women are almost three times as likely as males to be in the "unknown" category.

From the National Research Council's 1977 survey of doctorate recipients, we have information on the unemployment rate of Ph.D.'s in science, engineering, and the humanities, that is the number of women and men actively seeking employment. (Table 72) These figures point to the underutilization of female Ph.D.'s. The unemployment rate for women is highest in the humanities, especially in history (10.4%), philosophy (8.7%), and classical language and literature (8.6%). Comparable unemployment rates for men are considerably lower in all fields. Only in computer science do we find 0% unemployment for both women and men.

Table 69

Percentage Female Among Medicine and Law Degree Recipients, 1949-50 to 1977-78



[1] Comparable data not available for law degrees.

Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Digest of Education Statistics, 1977-78. Washington, DC, 1978. Department of Health, Education, and Welfare, National Center for Education Statistics. Earned Degrees Conferred 1977-78 -- Preliminary Summary. Washington, DC, 1979.

Table 70

Trends in the Type of Postdoctoral Employer of Men and Women Doctorates, 1960-1970

Type of Employer	1960 Women	1960 Men	1965 Women	1965 Men	1970 Women	1970 Men
Educational Institution	73%	60%	71%	61%	82%	68%
Industry/Business	3	18	3	14	3	16
Government	5	8	4	6	6	10
Nonprofit	3	3	5	3	4	3
Other (including self-employment)	15	11	16	15	5	3
Postdoctoral Study	6	7	10	11	13	15
Unknown Status	3	2	6	4	7	5
N =	(9,734)		(16,341)		(29,436)	

Note: Unknown postdoctoral study and status are figured as percentages of total. Types of employer are figured as percent of total minus postdoctoral study and status unknown.

Source: Helen S. Astin. "Career Profiles of Women Doctorates." Academic Women on the Move. New York: Russell Sage Foundation, 1973.

QUOTE:

Unemployment rates of women have always been higher than those of men. In the past, higher unemployment rates for women were accepted because it was assumed that women did not "need" to work. We know now that women and men work for the same reasons: to support themselves and their families and to seek advancement in their fields. Despite the legal mandate and moral persuasion to provide equal opportunity in employment, unemployment rates for women scientists continue to be two to five times higher than those for men.

- Betty M. Vetter, Scientific Manpower Commission, 1978

Information on the job activities of doctorates shows that women more often than men are involved in teaching, equally likely to be involved in research and scholarly writing, and less likely to be involved in administration or management. This general pattern holds for those earning the doctorate in humanities, social sciences, biological sciences, physical sciences, and education. (Table 73)

Several employment issues are inadequately described in this section. We found little information, for example, on types of positions, rate of advancement, location by state, rate of job change, job activities, and numerous other factors for those with master's, doctor's, and first-professional degrees. At the same time, women become a greater percentage of those receiving these degrees, the need for studies of their careers increases.

Table 71

Trends in the Type of Postdoctoral Employer of Men and Women Doctorates, 1973 and 1975

Type of Employer	1973 Women	1973 Men	1975 Women	1975 Men
Educational Institution	59%	54%	60%	55%
Industry/Business	4	22	8	24
Federal Government	4	8	4	8
All Other	16	10	14	8
Unknown (including unemployed)	16	6	14	5
N =	(17,484)	(187,812)	(21,811)	(212,006)

Source: D.M. Gilford and J. Snyder. Women and Minority Ph.D.'s in the 1970's: A Data Book. Washington, DC: National Academy of Sciences, 1977.

SALARIES. One important employment issue that is well documented is salaries. We know, for example, that women with five or more years of college earn less salary than men with the same amount of education. Eleven percent of the women and only 2% of the men earn less than $2,000. (Table 74) At the other end of the continuum, 4% of the women and 30% of the men earn $25,000 or more.

An examination of the salaries of these same individuals according to their age shows that a woman between the ages of 25 and 34 earns 64% of the salary of a man in the same age bracket. (Table 75) Between the years of 35 and 44, a woman only earns 55% of a man's salary. Similarly, between 45 and 54 and between 55 and 64 a woman earns 54% and 57% respectively. A woman 65 years or older earns 63% of a man's salary.

The education category itself, "five or more years of college," could create several of the factors accounting for large salary differentials. Some of these factors are evident when we examine effects of field of study, race/ethnicity, age, and type of employer. The National Research Council of the National Academy of Sciences' survey of science, engineering, and humanities doctorates as well as other data help us to better understand what is happening to the salaries of women and men. When the salary of female doctorates in five fields is calculated as a percent of male doctorates' salaries in the same fields, women appear to fare best in education (83%). Those in the physical sciences fare the worst (75%). (Table 76)

When salary differentials are examined according to racial/ethnic group, we find that in 1973:

Table 72

Unemployment Rates of Ph.D.'s in Science, Engineering, and the Humanities, 1977

Field of Doctorate	Unemployment Rate (Percentage of Labor Force) Female	Male
History	10.4%	1.7%
Philosophy	8.7	4.0
Classical Language and Literature	8.6	1.2
Modern Language and Literature	7.2	2.8
Music	6.5	1.5
English/American Literature	6.2	2.1
Physics/Astronomy	5.7	1.0
Art History	5.3	3.0
Chemistry	5.0	.9
Earth Sciences	4.8	.9
Other Humanities	4.4	3.0
Speech	4.2	.2
Social Sciences	4.1	.9
Biological Sciences	3.9	1.3
Mathematics	3.2	1.0
Engineering	3.0	.6
Agricultural Sciences	2.7	.5
Psychology	2.6	.9
Medical Science	1.6	1.0
Computer Science	0	0

Source: National Research Council, Commission on Human Resources. 1977 Survey of Doctorate Recipients. Washington, DC, 1977.

Table 73

Employment Percentages for Women and Men by Activity and Field

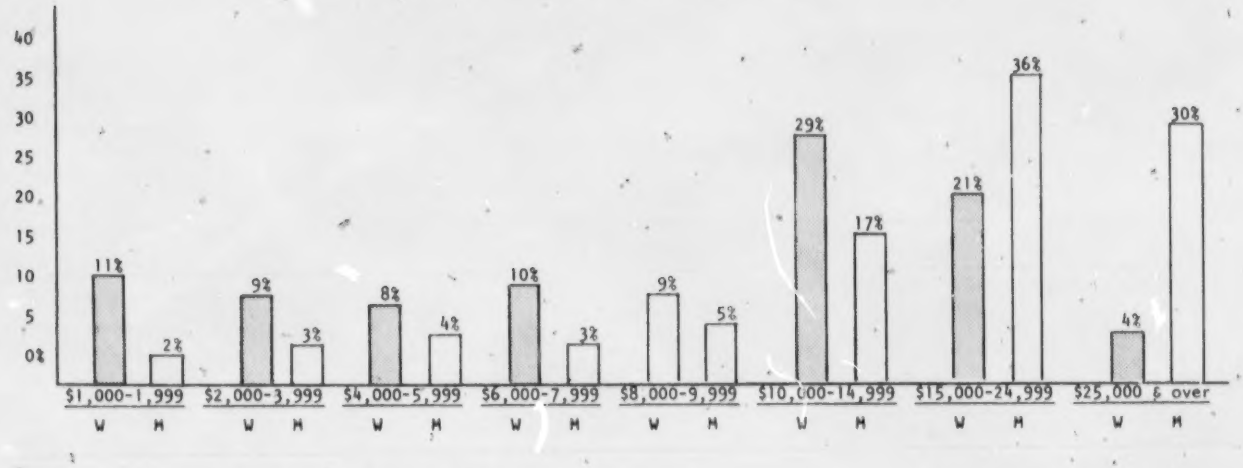
Activity	Humanities Women	Humanities Men	Social Sciences Women	Social Sciences Men	Biological Sciences Women	Biological Sciences Men	Physical Sciences Women	Physical Sciences Men	Education Women	Education Men
Teaching	78%	74%	55%	47%	42%	34%	44%	26%	59%	45%
Research, Scholarly Writing, Artistic Production	4	4	15	15	38	35	34	35	3	4
Administration or Management	11	17	11	17	8	20	9	29	24	39
Other[1]	7	5	19	21	12	11	13	10	14	12

[1] Other includes professional service to patients or clients, other professional positions, white collar, clerical or sales, skilled or semiskilled worker positions, and no answer. The only category representing 10% or greater was professional service to patients or clients for those with degrees in the social sciences (11% of the women and 14% of the men).

Source: J.A. Centra. Women, Men, and the Doctorate. Princeton, NJ: Educational Testing Service, 1974.

Table 74

Percentage Distribution of Total Annual Income[1] of Those with Five or More Years of College by Sex



[1] Only those with an income are included.

Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Digest of Education Statistics, 1979. Washington, DC, 1979.

- White women earned 83% of white men's salaries;
- Black women earned 86% of Black men's salaries;
- Hispanic women earned 97% of Hispanic men's salaries; and
- Asian women earned 76% of Asian men's salaries.

The figures for 1975 did not change significantly. (Table 77)

Age may influence the overall percentages of salary differentials since more males may be in the higher age categories. Because the amount of time in employment contributes to the actual earned salary, these males would be inflating the apparent differences. To examine this problem, we can look at the female doctoral recipients' median annual salary as a percent of the male doctoral recipients' salary for each of nine age categories. For engineers and scientists, we find the least difference

QUOTE:

> The salary gap between men and women increases with age and higher degree levels, and has widened over the past five years instead of narrowing.
>
> - Betty M. Vetter, Scientific Manpower Commission, 1978

Table 75

Median Annual Income of Females 25 Years Old and Over Who Have Completed 5 or More Years of College As Percent of Males, by Age

Age	1976
25 - 34	64%
35 - 44	55
45 - 54	54
55 - 64	57
65 & over	63

(Actual salaries of females are: $9,376; $12,025; $13,342; $13,163; $7,930.)

Source: Department of Health, Education, and Welfare, National Center for Education Statistics. Digest of Education Statistics, 1979. Washington, DC, 1979.

among the youngest doctorates. In the under 30 category, female engineers and scientists earn 93% of a male's salary. (Table 78) The difference is greatest among engineers and scientists in the 55-59 age category. Women in this group earn only 74% of men's salaries. The evidence is similar for humanists and social scientists. Females who are under 30 earn 101% of males' salaries in the same age category. This percentage drops off quickly; women in the 50-54 and 55-59 age categories earn only 73% of men's salaries. Although women's salaries seem to be closer to men's in the humanities and

Table 76

Female Doctoral Recipients' Median Annual Salary[1] as Percent of Male's Salary by Field

Education	83%
Humanities	80
Biological Science	78
Social Science	76
Physical Science	75

[1] Full-time employment only

(Actual salaries for women are $18,000; $15,200; $16,900; $18,200; $16,400.)

Source: J.A. Centra. Women, Men, and the Doctorate. Princeton, NJ: Eductional Testing Service, 1974.

social sciences, the acutal salaries in these fields are lower than the salaries of engineers and scientists. (Table 79) Consequently, women are still better off in engineering and the sciences than in the humanities.

One possible explanation for the smaller difference in salaries among younger scientists is that there used to be discrimination in salaries but the situation has changed. Although that may be true, there are numerous reasons (i.e., different promotion rates, "greater need" of male for

Table 77

Female Doctoral Scientists' and Engineers' Median Annual Salary[1] as Percent of Male's Salary by Racial/Ethnic Groups

	1973	1975
White	83%	80%
Black	86	88
American Indian	-	87
Hispanic	97	93
Asian	76	75

(Actual salaries for women in 1973 are: $17,280; $18,608; - ; $17,617; $15,817; - ; $17,400; $17,306. Salaries in 1975 are: $18,793; $20,890; $18,450; $20,617; $18,200.)

[1] Full-time employment only

- Percent not calculated for N less than 30

Source: D.M. Gilford and J. Snyder. Women and Minority Ph.D.'s in the 1970's: A Data Book. Washington, DC: National Academy of Sciences, 1977.

Table 78

Female Doctoral Recipients' Median Annual Salary[1] as Percent of Male's Salary by Age

	1977	
Age	Engineers and Scientists	Humanists and Social Scientists
Under 30	93%	101%
30 - 34	89	95
35 - 39	84	91
40 - 44	81	87
45 - 49	77	81
50 - 54	78	73
55 - 59	74	73
60 - 64	78	77
Over 64	79	80

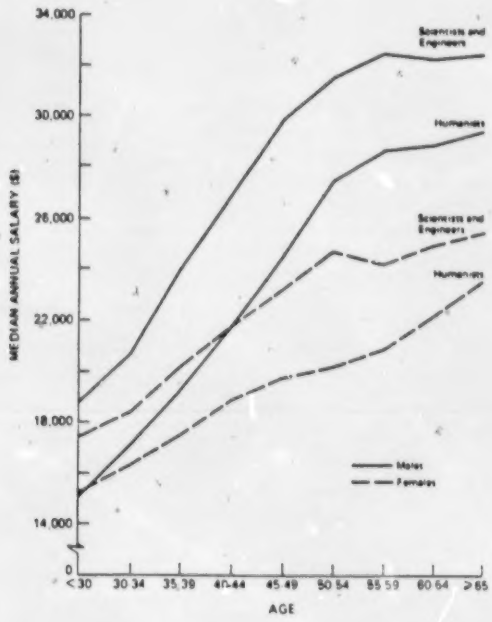
[1] Full-time employment only

(Actual salaries of female engineers and scientists are: $17,400; $18,400; $20,100; $21,800; $23,100; $24,700; $24,100; $25,000; $25,500. Salaries of female humanists and social scientists are: $15,200; $16,300; $17,500; $18,900; $19,800; $20,100; $20,900; $22,100; $23,500).

Source: Betty D. Maxfield. Science, Engineering and Humanities Doctorates in the United States: 1977 Profile. Washington, DC: National Academy of Sciences, National Research Council, 1978.

Table 79

Median Annual Salaries of Doctorate Recipients by Age and Sex, 1977



Source: Betty D. Maxfield. Science, Engineering, and Humanities Doctorates in the United States: 1977 Profile. Washington, DC: National Academy of Sciences, National Research Council, 1978.

salary) to believe that the longer a woman is employed the farther behind she will fall. The data seems to verify the phenomenon--more similar salaries are found among those with the least number of years employed. The more years in the work force the greater the difference in salaries. (Table 80)

And finally, we can look at the salary differentials according to type of institution. A frequent explanation for salary differentials is that women are less likely than men to work in business, where salaries are high. However, when we examine the female doctoral recipients' median annual salary as a percentage of males' salaries by type of institution, we find women consistently are paid less than men. Female engineers and scientists, for example, working in state and local government earn 96% of a man's salary working in the same type of institution. (Table 81) In other settings women earn an even smaller percentage of men's salaries. In the Federal Government they earn 96%, in hospitals and clinics they earn 81%, and in other nonprofit organizations they earn only 78%. Women with Ph.D.'s in the humanities and social sciences, in general, earn an even smaller percentage of men's salaries in comparable settings.

QUOTE:

- The median annual salary for science and engineering Ph.D.'s was $25,600, with men receiving $26,000 and women earning $20,700 as median salaries.
- Ph.D.'s in the humanities earned a median annual salary of $21,000 in 1977, with men and women earning $22,100 and $18,300, respectively.

  - Betty D. Maxfield, National Academy of Sciences, 1978

The evidence concerning the gap between the salaries of women with doctorates and the salaries of men with doctorates remains consistent, whether we look at race and ethnicity, age, or type of institution where employed. Women with similar training, approximately the same age, and working in the same type of institution as men earn less.

Table 80

Female's Current Average Annual Income[1] as a Percentage of Male's Income According to Number of Years in Full-Time Employment

	Average Annual Income					
No. of Years Experience	Humanities	Social Science	Biol. Science	Phys. Science	Education	All
22 - 23	78% ($19,200)	86 ($24,100)	80 ($22,400)	73 ($21,300)	82 ($21,500)	80 ($21,800)
13 - 14	88% ($17,200)	80 ($20,100)	82 ($20,500)	77 ($18,700)	85 ($20,100)	82 ($19,300)
5 - 6	90% ($13,500)	93 ($17,700)	85 ($15,100)	82 ($14,700)	88 ($17,800)	88 ($16,400)

[1] Full-time employment only

Source: J.A. Centra. Women, Men, and the Doctorate. Princeton, NJ: Educational Testing Service, 1974.

Table 81

Female Doctoral Recipients' Median Annual Salary[1] as Percent of Male's Salary by Type of Institution

	1977	
Type of Institution	Engineers and Scientists	Humanists and Social Scientists
Educational Institution	82%	84%
4-year College/University	82	83
2-year College	93	91
Elem./Sec. School	91	78
Federal Government	89	68
State/Local Government	96	75
Hospital/ Clinic	87	-
Other Nonprofit Organizations	78	-
Business/Industry	81	62
Total	80	83

[1] Full-time employment only

- Not relevant category

(Actual salaries of female engineers and scientists are: $19,900; $19,900; $19,700; $20,700, $26,600, $21,000; $20,900; $21,800; $24,400. Salaries of humanists and social scientists are: $18,500; $18,500; $19,300; $14,900; $19,900; $14,200; $13,100.)

Source: Betty D. Maxfield. Science, Engineering, and Humanities Doctorates in the United States: 1977 Profile. Washington, DC: National Academy of Sciences, National Research Council, 1978.

Conclusion

This volume has brought together many facts and figures that help to characterize the status of women as students in post-secondary education. These statistics provide a partial picture of factors related to such student concerns as enrollment, portrayal in textbooks, fields of study, athletics and extracurricular activities, and educational outcomes. To briefly summarize some of the data:

- Women and men will represent equal percentages of the college population in the 1980's. Although there are some differences now by type of institution, we find that the percentage of women enrolled in community and junior colleges already exceeds the percentage of men.
- Women enter college with better grades than men.
- Women and men who are first-year college students indicate different preferences for probable fields of study.
- As undergraduates, women are less likely than men to indicate the intention of obtaining higher degrees.
- Women have a higher attrition rate than do men.
- Although only a few studies of college textbooks have been done, the findings indicate that women are considerably underrepresented or, more frequently, just not mentioned.
- Women and men finance their college education in similar ways (e.g., no major differences in the use of scholarships, family aid, repayable loans, or personal savings).
- Both two-year and four-year colleges are more likely to offer contact and non-contact competitive athletics as well as contact intramurals for males than for females.
- In extracurricular activities, men hold the elected positions that are often associated with power, such as student body president, while women hold the appointed positions, such as editor. Women are more likely to hold elected positions in the smaller institutions.
- American Indian/Alaskan Native females, Black females, Mexican American females, and Puerto Rican females are less likely than majority females to complete college, while Pilipino American females, Japanese American females and Chinese American females are more likely than majority females to complete college.
- Degrees awarded to women and men continue to show sex segregation. For instance, women earn 96% of home economics degrees, 88% of library science degrees, 80% of health profession degrees, 76% of foreign language degrees, and 72% of education degrees.
- Even within fields, there is sex segregation. In education, for example, women earn 72% of the bachelor's degrees overall, but they earn only 8% of the bachelors in industrial arts/vocational/technical education and 9% of those in agricultural education.
- With less than a college degree, women (of all races) are more likely to be employed in sales or clerical jobs, while men (Blacks and other minorities in particular) are more likely to be employed as craft workers and operatives. With a college degree, women and men (of all races) are more likely to be employed in professional and managerial positions. This indicates that one way to increase the number of women and minorities in professional and managerial jobs is to reduce the differential attrition rates for these groups.
- Salary offers to candidates for the bachelor's degree continue to show that women earn less than men.
- Annual incomes of women and men with four years of college are considerably different. Twenty-three percent of the men and 2% of the women earn more than $25,000. Conversely, 2% of the men and 18% of the women earn less than $2,000. These figures only include individuals with an income, hence non-employed women are not represented.
- An increasing percentage of women are continuing their education beyond the bachelor's degree (38% in 1972 and 45% in 1977).
- As with undergraduate enrollment, graduate enrollment for women shows considerable differences by field (e.g., women are 91% of all first-year graduate students enrolled in home economics, but only 5% of those in engineering).
- Women in graduate school have a higher attrition rate than men.
- Male graduate students and male faculty are both more likely than female graduate students and female faculty to agree that female students are not as dedicated as male students.

- In 1879 women earned 1% of all master's degrees and in 1978 they earned 48% of the masters.
- As the enrollment data by field suggest, women are overrepresented in some fields (e.g., they earned 92% of the masters awarded in home economics in 1977) and underrepresented in other fields (e.g., they earned 5% of the masters awarded in engineering.
- More than half of the women earned their master's degrees in education. Men, on the other hand, are more equally spread across several fields (24% in education, 25% in business, and 10% in engineering).
- In 1879 women earned 6% of the Ph.D.'s awarded, and in 1978 they earned 26% of the Ph.D.'s.
- Today women are receiving a larger percentage of first-professional degrees than ever before. Over time, however, they seem to be concentrated in fewer fields.
- Female Ph.D.'s have a higher unemployment rate than males. (Unemployment is determined by the number of those unemployed who are actively seeking employment.)
- Women with a Ph.D. are more likely than men with a Ph.D. to be in teaching, approximately as likely to be in research and scholarly writing, and less likely to be in administration or management.
- Women with advanced degrees earn less money than men.

Where studies have permitted us to look at changes across time, we generally find positive changes concerning women in post-secondary education. Certainly women are better represented now than at any time in the past. Future progress must come in the distribution of women across all fields, in the representation of women in textbooks, in the counseling of women or other factors that lead to the differential attrition rate of women and men, in the availability of athletics for women, and in the outcomes of education, such as employment, salaries, and promotion. A future comparison of new figures to those presented here will enable us, like the mythological Killeyloo bird, to better understand where we are by seeing where we have been.

References

Abbott, Ferriss. Indicators of Trends in the Status of American Women. New York: Russell Sage Foundation, 1971.

Astin, H.S. The Woman Doctorate in America: Origins, Career, and Family. New York: Russell Sage Foundation, 1969.

Babey-Brook, A.M., and R.B. Amber. Discrimination Against Women in Higher Education. A 15 Year Survey. Promotional Practices at Brooklyn College CUNY, 1955-1970. All Ranks Tenured and Untenured. (Microfiche, EDRS, ED 044 089).*

Bernard, J. Academic Women. University Park, PA: Pennsylvania State University Press, 1964.

Blake, Mabelle Babcock. Guidance for College Women. New York: D. Appleton and Co., 1926.

Butler, Matilda. Development of Equality of Educational Opportunity Department. San Francisco: Far West Laboratory for Educational Research and Development, 1978.

Butler, Matilda and William Paisley. Women and the Mass Media: Sourcebook for Research and Action. New York: Human Sciences Press, 1980.

Carnegie Commission on Higher Education. A Digest of Reports of the Carnegie Commission on Higher Education. New York: McGraw-Hill Book Co., 1974.

Centra, J.A. Women, Men, and the Doctorate. Princeton, NJ: Educational Testing Service, 1974.

College Placement Council, Inc. College Placement Annual 1959. Bethlehem, PA: College Placement Council, Inc., 1958.

_____. College Placement Annual 1976. Bethlehem, PA: College Placement Council, Inc., 1976.

_____. A Study of Beginner Offers. Bethlehem, PA: College Placement Council, Inc., 1978.

Commission on Human Resources. 1977 Survey of Doctorate Recipients. Washington, DC: National Academy of Sciences, National Research Council, 1977.

Cooperative Institutional Research Program. The American Freshman: National Norms for Fall 1979. Los Angeles: Graduate School of Education, University of California, 1979.

Dillenbeck, Douglas D. and Sue Wetzel, eds. The College Handbook. New York: College Entrance Examination Board, 1972.

_____. The College Handbook. Part 2: Tables and Maps. New York: College Entrance Examination Board, 1972.

Feldman, Saul D. Escape from the Doll's House: Women in Graduate and Professional School Education. New York: McGraw-Hill, 1974.

Ferriss, A.L. Indicators of Trends in the Status of American Women. New York: Russell Sage Foundation, 1971.

Furniss, W.T. and P.A. Graham, eds. Women in Higher Education. Washington, DC: American Council on Education, 1974.

Gilford, D.M. and J. Snyder. Women and Minority Ph.D.'s in the 1970's: A Data Book. Washington, DC: National Academy of Sciences, 1977.

Gomberg, I.L. and F.J. Atelsek. Composition of College and University Governing Boards. Higher Education Panel Reports, No. 35. Washington, DC: American Council on Education, 1977.

Harmon, Lindsey R. High School Ability Patterns, A Backward Look from the Doctorate. Scientific Manpower Report No. 6. Washington, DC: National Academy of Sciences, National Research Council, 1965.

_____. Profiles of Ph.D.'s in the Sciences. Washington, DC: National Academy of Sciences, National Research Council, 1965.

*Items listed in the ERIC system are available in either microfiche or paper copy from the ERIC Document Reproduction Service (EDRS), Box 190, Arlington, VA 22210.

Harragan, Betty L. Games Mother Never Taught You. New York: Ross and Associates, 1978.

The Higher, The Fewer. Report and Recommendations: Committee to Study the Status of Women in Graduate Education and Later Careers. (Microfiche, EDRS, ED 092 024).

Howard, Suzanne. But We Will Persist: A Comparative Research Report on the Status of Women in Academe. Washington, DC: American Association of University Women, 1978.

_____. Why Aren't Women Administering our Schools? The Status of Women Public School Teachers and the Factors Hindering Their Promotion into Administration. Arlington, VA: National Council of Administrative Women in Educatio, 1975.

Maxfield, B.D. Science, Engineering and Humanities Doctorates in the United States: 1977 Profile. Washington, DC: National Academy of Sciences, National Research Council, 1978.

National Advisory Council on Women's Educational Programs. Problems in Assessing the Impact of Education Division Problems on Girls and Women. Washington, DC: Government Printing Office, 1978.

National Education Association. Research Division. Salaries Paid and Salary-Related Practices in Higher Education, 1971-72. Washington, DC: National Education Association, 1972.

_____. Status of the American Public School Teacher 1975-76. Washington, DC: National Education Association, 1977.

_____. The Status of Women Faculty and Administrators in Higher Education Institutions 1971-72. Washington, DC: National Education Association, 1973.

National School Boards Association. Women on School Boards. Evanston, IL: National School Boards Association, 1974.

National Science Foundation. Technical Notes and Detailed Statistical Tables: Graduate Science Education: Student Support and Postdoctorals Fall 1977. Surveys of Science Resources Series, NSF 78-315. Washington, DC: National Science Foundation, n.d.

_____. Technical Notes and Detailed Tables: Human Resources for Scientific Activities at Universities and Colleges January 1978. Surveys of Science Resources Series, NSF 78-318. Washington, DC: National Science Foundation, n.d.

Nielson, William A, ed. Annual Handbook 1941. Boston: Ginn & Co., 1941.

Report of the Professional Women of Stanford Medical School. (Microfiche, EDRS, ED 067 983).

Report of Subcommittee on Equal Opportunities for Faculty and Student Women. (Microfiche, EDRS, ED 056 637).

Research Division. Office of Scientific Personnel. Careers of Ph.D.'s Academic versus Nonacademic: A Second Report on Follow-Up of Doctorate Cohorts 1935-1960. Career Patterns Report No. 2. Washington, DC: National Academy of Sciences, National Research Council, n.d.

Rosen, D.; S. Werner; and B. Yates, eds. We'll Do It Ourselves: Combatting Sexism in Education. Lincoln, NE: University of Nebraska Press, 1974.

Rossi, Alice and A. Calderwood, eds. Academic Women on the Move. New York: Russell Sage Foundation, 1973.

Scott, E.L. Higher Education Salary Evaluation Kit. Washington, DC: American Association of University Professors, 1977.

Sells, Lucy Watson. "Sex, Ethnic and Field Differences in Doctoral Outcomes." Unpublished dissertation, University of California, Berkeley, 1975.

Sexton, P. Women in Education. Bloomington, IN: Phi Delta Kappa Educational Foundation, 1976.

Sheldon, Eleanor and Wilbert E. Moore. Indicators of Social Change: Concepts and Measurements. New York: Russell Sage Foundation, 1968.

Solmon, Lewis and Nancy Ochsner. New Findings on the Effects of Colleges. Washington, DC: American Association for Higher Education, 1978.

U.S. Commission on Civil Rights. Social Indicators of Equality for Minorities and Women. Washington, DC: Government Printing Office, 1978.

U.S. Department of Commerce. Bureau of the Census. Current Population Reports, Series P-20, No. 321. Washington, DC: Government Printing Office, 1978.

_____. Social Indicators 1973. Washington, DC: Government Printing Office, 1974.

_____. Social Indicators 1976. Washington, DC: Government Printing Office, 1977.

_____. Population Characteristics, Series P-20, No. 314. Washington, DC: Government Printing Office, 1977.

U.S. Department of Health, Education, and Welfare. Directory of Education Associations 1977. Washington, DC: Government Printing Office, 1977.

U.S. Department of Health, Education, and Welfare. National Center for Education Statistics. Analysis of Doctor's Degrees Awarded to Men and to Women, 1970-71 Through 1974-75. Washington, DC: Government Printing Office, 1977.

_____. Associate Degrees and Other Formal Awards Below the Baccalaurate Analysis of Six-Year Trends. Washington, DC: Government Printing Office, 1978.

_____. Associate Degrees and Other Formal Awards Below the Baccalaurate 1974-75: Summary Data. Washington, DC: Government Printing Office, 1977.

_____. Athletic Injuries and Deaths in Secondary Schools and Colleges. Washington, DC: Government Printing Office, 1979.

_____. Bachelor's Degrees Awarded to Women. Washington, DC: Government Printing Office, 1978.

_____. Barriers to Women's Participation in Postsecondary Education: A Review and Commentary as of 1973-74. Washington, DC: Government Printing Office, 1975.

_____. A Comparison of Women's Faculty Salaries and Earned Degrees. Washington, DC: Government Printing Office, 1979.

_____. The Condition of Education. Washington, DC: Government Printing Office, 1978.

_____. Degree Awards to Women: An Update. Washington, DC: Government Printing Office, 1979.

_____. Digest of Educational Statistics 1970. Washington, DC: Government Printing Office, 1970.

_____. Digest of Education Statistics 1977-78. Washington, DC: Government Printing Office, 1978.

_____. Digest of Education Statistics 1979. Washington, DC: Government Printing Office, 1979.

_____. Doctoral Degree Awards to Women. Washington, DC: Government Printing Office, 1978.

_____. Early Release: Earned Degrees Conferred 1977-78. Washington, DC: Government Printing Office, 1979.

_____. Earned Degrees Conferred: Analysis of Trends, 1965-66 Through 1974-75. Washington, DC: Government Printing Office, 1977.

_____. Earned Degrees Conferred 1972-73 and 1973-74: Summary Data. Washington, DC: Government Printing Office, 1976.

_____. Earned Degrees Conferred 1974-75: Summary Data. Washington, DC: Government Printing Office, 1977.

_____. Earned Degrees Conferred 1975-76. Washington, DC: Government Printing Office, 1978.

_____. Earned Degrees Conferred 1976-77. Washington, DC: Government Printing Office, 1978.

_____. Earned Degrees Conferred 1977-78: Preliminary Summary. Washington, DC: Government Printing Office, 1979.

_____. Fall Enrollment in Higher Education, 1975: Summary Report. Washington, DC: Government Printing Office, 1977.

_____. Fall Enrollment in Higher Education 1976: Final Report. Washington, DC: Government Printing Office, 1978.

_____. Fall Enrollment in Higher Education 1977. Washington, DC: Government Printing Office, 1977.

_____. First Professional Degree Awards to Women. Washington, DC: Government Printing Office, 1978.

_____. Master's Degree Awards to Women. Washington, DC: Government Printing Office, 1978.

_____. National Longitudinal Study of the High School Class of 1972: A Capsule Description of Second Follow-up Survey Data, October 1974. Washington, DC: Government Printing Office, 1977.

_____. National Longitudinal Study of High School Seniors: Group Profile on Self-Esteem, Locus of Control, and Life Goals. Washington, DC: Government Printing Office, 1977.

_____. Occupational Education: Enrollments and Programs in Noncollegiate Postsecondary Schools 1976. Washington, DC: Government Printing Office, 1978.

_____. Occupational Education: Learning a Skill Through Correspondence 1976. Washington, DC: Government Printing Office, 1978.

_____. Occupational Education: Women in Vocational Education. Washington, DC: Government Printing Office, 1978.

_____. Projections of Education Statistics to 1986-87. Washington, DC: Government Printing Office, 1978.

_____. Salaries and Tenure of Instructional Faculty in Institutions of Higher Education 1974-75. Washington, DC: Government Printing Office, 1976.

_____. Selected Statistics on Salaries and Tenure of Full-Time Instructional Faculty 1977-78. Washington, DC: Government Printing Office, 1978.

_____. Statistics of Public Elementary and Secondary Day Schools Fall 1975: Pupils, Staff, Revenues, Expenditures, and Salaries. Washington, DC: Government Printing Office, 1976.

_____. Statistics of Public Elementary and Secondary Day Schools Fall 1976: Pupils, Staff, Revenues, Expenditures, and Salaries. Washington, DC: Government Printing Office, 1978.

_____. Statistics of Trends in Education 1965-66 to 1985-86. Washington, DC: Government Printing Office, 1977.

_____. Student Financial Aid: Institutional Packaging and Family Expenditure Patterns. Washington, DC: Government Printing Office, 1978.

_____. Students Enrolled for Advanced Degrees Fall 1974: Summary Data. Washington, DC: Government Printing Office, 1976.

_____. Transfer Students in Institutions of Higher Education: National Longitudinal Study of High School Seniors. Washington, DC: Government Printing Office, 1977.

_____. Upper Division Enrollment by Degree Field Fall 1975: Summary Data. Washington, DC: Government Printing Office, 1977.

_____. Withdrawal from Institutions of Higher Education: An Appraisal with Longitudinal Data Involving Diverse Institutions. Washington, DC: Government Printing Office, 1977.

_____. Women's Representation Among Recipients of Doctor's and First-Professional Degrees 1970-71 Through 1974-75. Washington, DC: Government Printing Office, 1976.

U.S. Department of Health, Education, and Welfare. National Institute of Education. The Status of Education Research and Development in the United States: Databook 1976. Washington, DC: NIE, 1976.

_____. Women and Minorities in Education Research and Development. Washington, DC: NIE, 1977.

U.S. Department of Labor. Bureau of Labor Statistics. Educational Attainment of Workers March 1975, Special Labor Force Report 186. Washington, DC: Government Printing Office, 1976.

_____. Educational Attainment of Workers March 1977, Special Labor Force Report 209. Washington, DC: Government Printing Office, 1978.

_____. New Labor Force Projections to 1990, Special Labor Force Report 197. Washington, DC: Government Printing Office, 1977.

_____. Students, Graduates, and Dropouts in the Labor Market. Washington, DC: Government Printing Office, 1977.

_____. U.S. Working Women: A Databook. Washington, DC: Government Printing Office, 1977.

U.S. Equal Employment Opportunity Commission. Employment Opportunity in the Schools: Job Patterns of Minorities and Women in Public Elementary and Secondary Schools 1975. Washington, DC: Government Printing Office, 1977.

Van Alstyne, C and J.S. Withers. Women and Minorities in Administration of Higher Education Institutions: Employment Patterns and Salary Comparisons. Washington, DC: College and University Personnel Association, 1977.

Van Fleet, D.D. Salaries of Males and Females: A Sample of Conditions at the University of Akron. (Microfiche, EDRS, ED 056 638).

Weitzman, L. et al. Women on the Yale Faculty. (Microfiche, EDRS, ED 056 636).

JOURNALS AND NEWSLETTERS

American Council on Education (ACE) Faculty and Staff Survey Newsletter

Change

Chronicles of Higher Education

Comment

Educational Researcher

Institute for Social Research Newsletter

Interracial Books for Children Bulletin

In The Running

Monthly Labor Review

Ms. Magazine

National Center for Education Statistics Bulletin

Science

Signs: Journal of Women in Culture and Society

Title IX News

Women Today

Women's Rights Law Reporter